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General Heading: **BAKER MODEL "B" CASING CENTRALIZER**

Unit No. **A-12**

Subject:

Field Practice of Centering Casing to Insure a Better Cement Job

BAKER OIL TOOLS, INC.

Main Office and Factory:
6000 So. Boyle Ave., Box 127, Vernon Station, Los Angeles, Calif.
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Export Sales Office:
19 Rector Street, New York, N. Y.

Index: 250.1
Date: October 22, 1942

The use of Casing Centralizers to provide a more uniform annulus between the casing and the wall of the hole at critical cementing points, is becoming standard practice in many territories. Field results have indicated that the uniform annulus thus provided for the slurry is an important factor in minimizing channeling and in securing a successful *first time* cement job.

Field results have also indicated that the Baker Model "B" Casing Centralizer is one of the most efficient types of centering units yet devised. The effectiveness of Baker Casing Centralizers and their ability to stand up under severe operating conditions was ably demonstrated in a recent job performed in the Mid-Continent area, the essential details of which are given below.

In this particular well, three Baker Model "B" Casing Centralizers (in addition to a Baker Cement Wash-Down Whirler Float Shoe and a Baker Cement Float Collar) were placed on a string of 5½" casing that was to be landed in a 9200' hole. When the casing reached 7200', the engine broke down and it was impossible to raise or lower the string for nine hours, during which time, however, circulation was maintained. When the engine was repaired, it was found the pipe was stuck and oil was circulated to aid in its release. Ten days were spent attempting to loosen the string before it was finally pulled out of the hole.

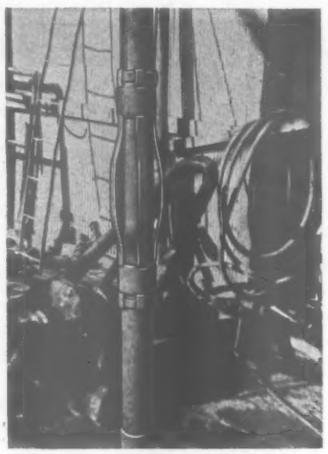


Fig. 1
Showing the excellent condition of one of the Baker Casing Centralizers on this job after being run in to 7200' and then pulled from hole.

The three Baker Casing Centralizers were found to be in just as good a condition as when they were originally run in (see Fig. 1). Leaving these three original Baker Casing Centralizers on the pipe, a fourth Baker Centralizer, which had unintentionally been left off the string on the first run, was then added, and the casing re-run to bottom (9200') without difficulty.

The reason why Baker Casing Centralizers can "take it" is because of their sturdy construction and unique operating principle . . . details of which are given below. (Also, see pages 248 and 249 of the 1942 Baker or Composite Catalog.)

OPERATING DETAILS ★ Baker Model "B" Casing Centralizer

The Baker Casing Centralizer, which in normal position is slightly larger than the casing or hole in which it is to run, is attached by merely slipping it on the casing, positioning it at the desired point, and plug welding the two Stop Rings. Due to the method of construction, when running casing equipped with a Baker Model "B" Casing Centralizer, there is no tendency of the Centralizer to revolve as it goes down the hole. Details of the operation of the Baker Model "B" Casing Centralizer are shown in the accompanying illustrations. Note that whether the casing is being lowered or raised, the Centralizer is always PULLED through the casing or past a restriction in the open hole . . . never PUSHED. This pulling action eliminates any possibility of the Centralizer Springs being distorted or damaged while landing the casing. One of the most important features is the fact that the Springs of the Baker Casing Centralizer always compress uniformly, tending to effectively center the casing in the hole regardless of the extent to which the Centralizer Springs are compressed.

Fig. 2
Showing Baker Casing Centraliser Attached to Casing Before Running-In.

With ordinary types of Centralizers which have the Springs rigidly mounted on Rings, the hazard of damaging the Springs and impairing the centering efficiency of such units will be obvious to experienced operators.

(1) Stop Rings are positioned so that they engage the forged hooks on the ends of the Springs.

(2) The Stop Rings are plug-welded to the casing.

(3) Note space between Collars and Stop Rings to permit travel when Springs are compressed and elongated.

(4) When lowering the casing, the lower Stop Ring engages the hooks on the lower ends of the Springs, PULLING the Centralizer through the hole (or casing) rather than pushing it through.

(5) When running through open hole and a restriction is encountered, the Centralizer Springs UNIFORMLY COMPRESS and elongate in an upward direction, moving the upper Collar upwardly toward the upper Stop Ring. (This upward movement is made possible by the initial space provided between the upper Collar and the Stop Ring. The space is sufficient to allow the Springs to be compressed to their fullest extent against the casing without engagement of the upper Collar with the upper Stop Ring.)

(6) Note that during the downward travel of the casing the upper Stop Ring is never in contact with either Collar or the upper hooked ends of the Springs so that the Ring is unable to exert any pushing force whatsoever on the Springs that would tend to buckle or distort them.

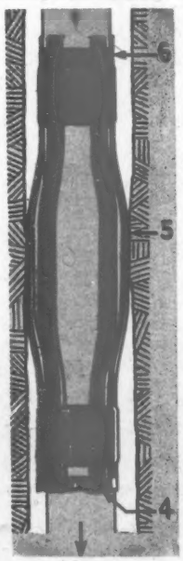
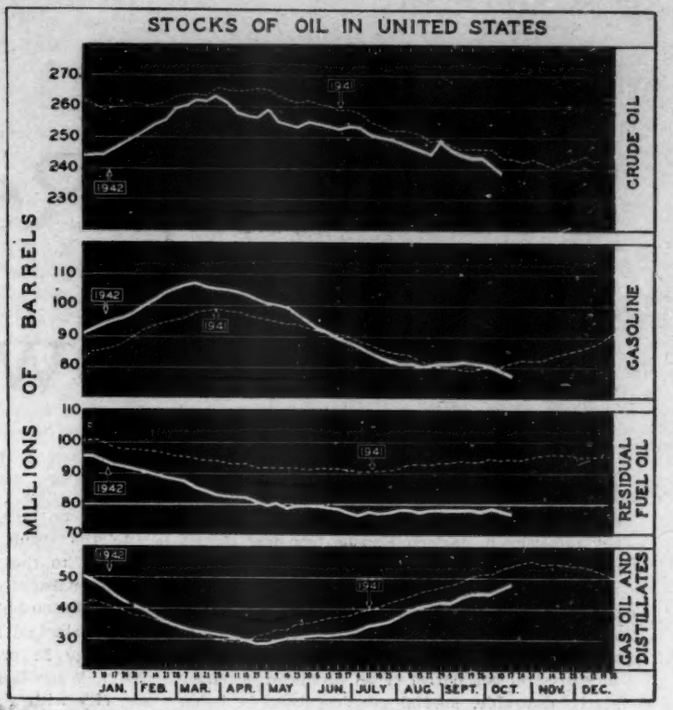


Fig. 3
Lowering Casing Equipped with a Baker Casing Centralizer. (When casing is raised, the action of the Centralizer is just the reverse as illustrated above, the unit being PULLED upward past the restriction by the contact of the upper Stop Ring with the hooked ends of the Springs.)

Trends

Diminishment of New Drilling Prospects Is Traceable to Prices



DEPRESSING influences of curtailed drilling, inadequate supplies, and price ceilings that thwart many potential escapes reverberate to foundations of the industry. Some aspects of the slowing down of producing and exploration operations are just now appearing and, in some respects, they have a more serious connotation than adverse influences already withstood by the industry. Reduced exploration incentives, covering the more specific problems of crude and product prices, equipment shortages, spacing regulations, and transportation maladjustments, go beyond reasons readily apparent. There is a frank expression of concern among oil companies and independents about the diminishing prospects available for drilling.

CRUDE PRODUCTION *3,910,170 bbl. daily average—up 40,625 bbl. One year ago 4,117,475 bbl.*

CRUDE STOCKS *239,121,000 bbl. as of Oct. 10—down 2,058,000 bbl. One year ago 243,571,000 bbl.*

GASOLINE STOCKS *78,956,000 bbl. as of Oct. 17—down 775,000 bbl. One year ago 81,623,000 bbl.*

RESIDUAL FUEL-OIL STOCKS *78,537,000 bbl. as of Oct. 17 — down 144,000 bbl. One year ago 94,800,000 bbl.*

GAS-OIL AND DISTILLATES *46,926,000 bbl. as of Oct. 17—up 919,000 bbl. One year ago 54,143,000 bbl.*

REFINERY RUNS *3,709,000 bbl. daily week ended Oct. 17—down 57,000 bbl. One year ago 4,131,000 bbl.*

The concept that fewer drilling prospects are currently available than before Pearl Harbor is partly the result of reduced primary exploration operations. Companies and independents are reluctant to use scarce supplies, pay high wages for drilling and incur other increased expenses under present conditions. Some areas in which the prospects for successful exploration are most attractive are the ones from which transportation outlets are inadequate. The conclusion may be reasonably drawn that readjustment, expansion, and extension of the industry's transportation facilities is not only vital to supplying present shortages but is equally important to attaining the scope of exploration desired by government agencies and virtually dictated by exigencies of war.

The manpower for leasing, blocking, negotiating drilling agreements, maintaining liaison between landowners and operators is substantially diminished. Price ceilings, accompanied so far by almost fetish opposition to unquestioned logic of arguments for relief, offer no incentive to expend the sums required by geophysical and geological studies in virgin areas.

Consequently, companies are rechecking previous subsurface information, drilling structures previously shuffled to the bottom of prospects. This method of recombing areas previously passed over has a dual connotation. In the first place, it seems to reflect a general diminishment of prospects. Secondly, the practice shows the extent to which aggressive operations have been circumscribed by factors traceable to the war.

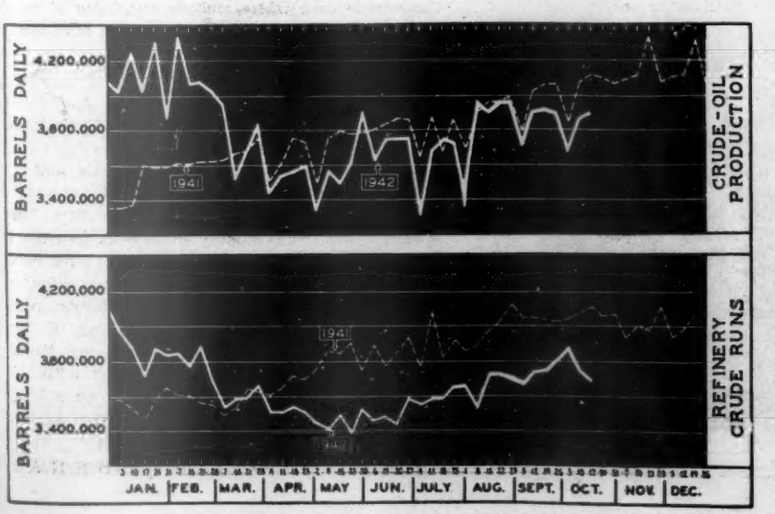
The escape from the web of stifling influences has been pointed out by industry representatives and a few of the better informed government agencies.

Whether the necessary corrective measures are taken depends largely on future policy of the price administration.

DAILY AVERAGE PRODUCTION FOR WEEK

	Oct. 17 crude oil	Oct. OPC quota all oils	Oct. 10 crude oil
Arkansas	73,200	79,500	73,400
California	744,250	782,000	731,250
Colorado	6,520	7,000	6,835
Eastern fields	94,575	107,400	98,850
Illinois	256,800	280,000	271,870
Indiana	18,600	19,000	17,350
Kansas	302,900	294,000	276,300
Louisiana	326,500	337,200	325,700
North Louisiana	*97,500*	.....	*97,700*
Louisiana Gulf Coast	*229,000*	.....	*228,000*
Michigan	65,900	65,700	61,800
Mississippi	69,900	50,000	70,900
Montana	21,225	24,400	21,700
Nebraska	3,500	3,500	3,450
New Mexico	102,100	101,100	98,590
Oklahoma	364,800	417,000	365,850
Texas	1,363,800	1,407,600	1,349,300
East Texas	*362,000*	.....	*362,000*
West Texas	*209,000*	.....	*206,000*
North Central Texas	*140,000*	.....	*140,000*
East Central Texas	*91,000*	.....	*90,400*
Texas Panhandle	*85,400*	.....	*85,200*
Texas Gulf Coast	*409,500*	.....	*399,000*
Southwest Texas	*66,900*	.....	*66,700*
Wyoming	95,600	90,800	96,400
Total United States	3,910,170	4,066,200	3,869,545

Total production, January 1-October 17, 1942 ..... 1,100,752,025 bbl.
Same period last year ..... 1,090,659,500 bbl.
Texas shutdown days, Oct. 11 and 17, previous week Oct. 4 and 10.



Secondary Recovery in East Kansas Grows in Importance

By PAUL REED

NOW that the war situation emphasizes the importance of obtaining petroleum supplies as near as possible to northern markets, secondary recovery in eastern Kansas has new significance. Within recent months it has been recognized that this is more than an interesting stripper area where water flooding has been superseding air and gas repressuring. In these times when production of oil with a minimum expenditure of steel per barrel of oil produced is particularly desirable, special consideration is being given to the contribution which this region may make to the national program. Difficulty in discovering new reserves in Oklahoma, Kansas and Illinois this year gives new incentive to applying tested techniques to exploiting large reserves of the older fields of Kansas which are traversed by major pipe-line trunk systems.

Studies of eastern Kansas indicate that after 40 years of development there still remains in the ground 4 billion barrels of crude in the producing area east of Range 2e. It has been estimated that of this aggregate reserve more than 220,000,000 bbl., or 5 per cent, are recoverable. Present production there now averages about 45,000 bbl. daily, approximately 35,000 bbl. comes from 6,527 wells in the western section which includes Woodson County on the east and Butler County on the western part of this area.

As the result of secondary-recovery activity, counties to the eastward have for the past 10 years consistently held production to the present rate of 10,000 bbl. per day from 10,300 wells.

The principal secondary-recovery projects east of Range 2e produce approximately 8,600 bbl. daily. Water-flooding undertakings are in the majority with about 40 projects producing 5,500 bbl., while a quarter as many air and gas-repressuring projects produce approximately 3,000 bbl. daily. Production from water flooding may be expected to show a considerable increase as the result of recent revival of activity and it does not seem unreasonable to expect that production by water flooding could be doubled in the area if conditions relating to outlets, prices, material and labor are favorable for profitable operation.

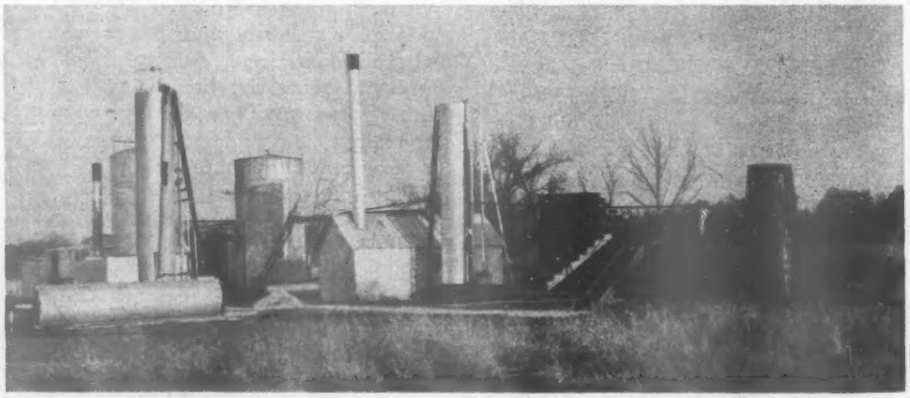
Major-Company Projects

Within the last few months several large operators which have not been prominently identified with water flooding in Kansas have been taking steps which may lead to their becoming important factors. Phillips Petroleum Co., which has been water flooding on a small scale in connection with water disposal in the Thrall-Aagard pool, has expanded flooding operations on its properties there by the drilling of additional input wells this year. In the Burket pool, also in Greenwood County, Phillips started a flood this summer with four input wells supplied with brine pumped directly from a salt-water sand. Before flooding, Phillips completed arrangements with four companies by which it acquired the right to operate producing properties which were blocked in a manner favorable to extensive operations.

The possibilities of water flooding sands of Greenwood County have been demonstrated by the unique operations carried on by York State Oil Co. for 7 years in the Seeley pool, where it now appears that the former estimate of 5,000 bbl. per acre or 600,000 bbl. total recovery will be exceeded. Present prospects are good for taking out more than 1,000,000 bbl. from the property.

Directly south of the York State project, Magnolia Petroleum Co. is preparing to make its first venture into Kansas water flooding on a section of land where it has made working agreements to operate properties of Tide Water Associated Oil Co., Cities Service Oil Co., and the T. C. Johnson estate in addition to its own.

The Texas Co. drilled 30 input wells and 12 oil wells this year to extend northwest and southeast its Centerville flood in Linn County. This flood was started originally in 1936 as an experiment in water flooding. So far, results have been disappointing. However, such an undertaking serves an empirical purpose for a major company. Texas Co. has extensive holdings of producing properties in Franklin, Linn and Miami counties, comprising about 1,500 acres with 500 wells producing 5,500 bbl. per month on a large part of which air repressuring has been applied



Divergence of opinion regarding brine-handling methods is observed (below) where York State Oil Co. aerates brine cascading down a baffled flume and (right, below) where a Phillips Petroleum Co. unit pumps directly from a salt-water sand to input wells through a closed system which excludes air. Both properties produce from 2,000-ft. sand in Greenwood County, Kansas

Above: Water-flood plant of Kirby Oil Co. in Rantoul-Osawatomie area where multiple completion of input wells provides for simultaneous flooding of three sands at depths of less than 800 ft.

for more than 15 years. In the area east of Rantoul, where a number of successful projects are being carried on, Texas Co. is considering the possibility of flooding company property near an air-repressuring project and close to a flood project.

Sloan & Zook is carrying on an active drilling program west of La Cygne in Linn County where it is preparing to operate its first water-flood project in the Mid-Continent.

Small Organizations

In the successful water-flooding operations of eastern Kansas, fairly small organizations from the East and from Oklahoma have had a prominent part. However, at Osawatomie, the local firm of Vossler & Elliott led the way for eastern operators who followed with projects on a larger scale. At the present prices for crude oil, operations must be carried on with strict economy, much use of second-hand equipment and close attention to details in order to succeed. In studies of Kansas water flooding made by major companies it has been frequently concluded that present prices would not warrant major companies undertaking water flooding because of their higher overhead and higher wage scales. It is also recognized that in flooding, a major company should adopt policies like those of a small operator who can have all details of the enterprise from the taking of cores to the operation of wells come under the direction of one man who is not hampered by division of responsibility characteristic of a large organization.

More favorable conditions for Kansas water flooding are to be found now than existed a year or two ago. Production from the area in recent years has been somewhat restricted by difficulty in arranging for adequate outlet of production. Pipe lines are now taking all that can be produced in this region since it is not subject to proration. Because of provisions made for secondary recovery, operators are exempt from OPC's M-68. More economical methods for equipping projects have been adopted. At present there is a definite trend in a large part of the water-flood area of Kansas to use tubing alone for both input and producing wells, thus eliminating casing. Tubing used is largely secondhand.

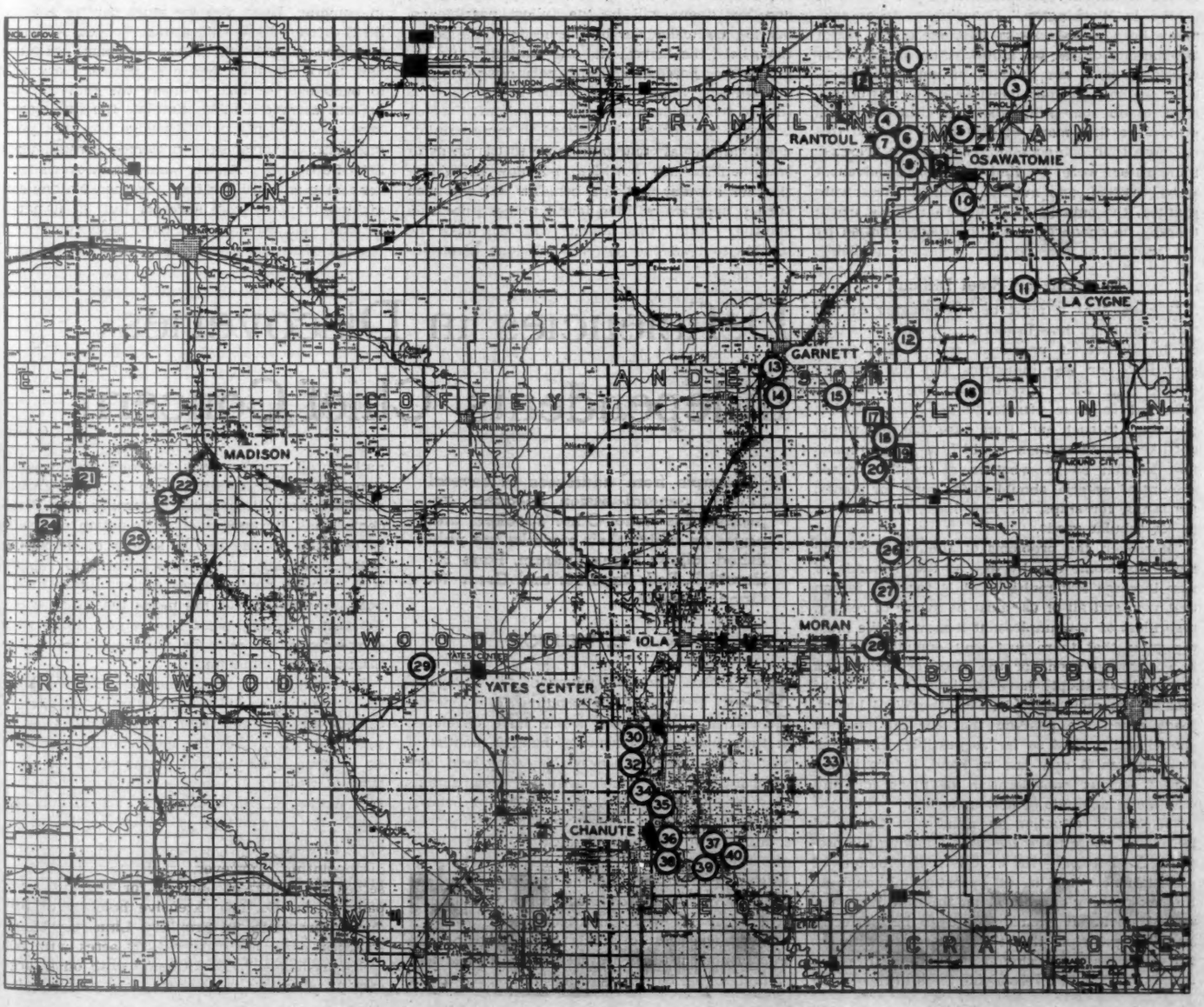
Brine is being more widely used for flooding. Consequently, problems of water supply are simplified. And it is claimed by some that brine is more effective than fresh water for removing oil from the sand. There is still a wide difference of opinion regarding methods for treating brine. This is exemplified by practices in Greenwood County, where brine is obtained from the so-called 1,000-ft. sand. York States aerates brine by cascading through a wide flume with baffles to a pond preliminary to treating and filtering. On its new project a few miles away, Phillips operates a closed system which excludes air from contact with the brine as it is pumped from the water sand into the input wells. Phillips has had considerable experience with both aeration and closed systems in brine disposal operations in western Kansas.

Water-Flooding Results

Representative examples of water flooding indicate what is being accomplished. York State

(Continued on Page 36)

Principal secondary-recovery operations in eastern Kansas. Numbers designating air and gas-repressuring projects are inclosed in squares, those for water-floods are circled. Frank W. Tyndall, trustee, 1, 26; Kansas City Testing Laboratory, 2; N.Y.K., 3, 8; Yount, 4; Wallace, 5; F. W. Black, 6; Kirby, 7, 35; Texas Co., 9, 16; Seaborn, 10; Sloan & Zook, 11; Conklin-Cooper, 12; Brundred, 13; Reed, 14, 15; Oko, 17, 18, 19, 20; Sinclair Prairie, 21; Magnolia, 22; York State, 23; Cities Service, 24; Phillips Petroleum, 25; McIntyre & Travis, 27; Shell, 28; Bird, Hanley & Sheedy, 29; T. B. Wilson, 30, 37; Matson, Melvin & Towne, 32; Petty & Wagner, 33; Carl Weiner, 34; Darby-Lynde, 36; W. H. Rolands, 38; Penn-Way, 40



OPC Plans for Easing Supply Shortage Explained to I.P.A.A.

WICHITA, Kans. — Two general programs of cushioning the equipment-supply outlook were outlined here this week before several hundred oil men attending the annual meeting of the Independent Petroleum Association of America by Petroleum Coordinator Harold L. Ickes and Greer W. Orton, director of the OPC Materials Division.

Coordinator Ickes, prevented by Cabinet and OPC duties from making a personal appearance, delivered his address over a special wire and his voice was carried through amplifiers to oil men assembled at the annual dinner Wednesday night.

Coordinator Ickes warned that the materials supply will be more dismal next year than now but said OPC is working out plans for redistribution of industry inventories.

"We in Washington," Coordinator Ickes said, "have been sharply aware that one of the major tribulations of the oil industry, as of all industries, has been the scarcity of materials. Moreover, we have not only been aware of it, we have tried to do something about it although I am quite sure that many of you have doubted this on more than one occasion. Even if the price administrator were to find that price advances were justified, and even if such advances were granted, the amount of exploration which might thereby be encouraged would still be limited by the amount of construction materials available.

Decisions on Steel Difficult

"I know that it must be discouraging to you men, who know how urgently important it is that oil be discovered, produced, refined and transported to our war industries and our fighting forces, and who, nevertheless, are constantly thwarted in your efforts to get the materials necessary to such end. I am sure that you would not like, any more than would I, to have to make the decision as to whether a strictly limited amount of material should go for guns, for planes, for tanks, for ships, for pipe lines, for derricks, or for tubular goods.

"Moreover, the problems of the WPB become more worrisome day by day as the demands of war increase and multiply. It is for this reason that you, and all of us, must be aware of reality, regardless of how unpleasant it may be. We must recognize that there just isn't enough material to go around even for the most essential uses and that we simply have to figure out ways of making the most of it. In fact, the WPB has already taken the position that the oil industry should utilize, just so far as possible, the inventories which it now has on hand, before it can expect serious consideration of pleas for any substantial amounts of new material.

"With this situation in mind, the Office of Petroleum Coordinator has been studying the possibilities that may lie in the redistribution of materials now held by oil operators, although as I speak nothing specific along this line has been agreed upon. It seems to me to be perfectly sound in principle that those operators with excesses in materials should be willing to make them available on a reasonable basis to those who are short of their requirements.

"Of course, I am familiar with the principal objection which is offered to this suggestion. It is that operators who were foresighted enough to stock up against possible emergencies should not be penalized by being forced to share their stores with those who did not look ahead. However, without attempting to debate this point one way or the other, I will simply call attention to a fundamental fact which supersedes all others: the oil industry must be kept operating. It has to have materials to operate. Therefore, it must get those materials from whatever source they can be made available.

"I have every confidence, therefore, that a plan for the redistribution of industry-held materials will be worked out within the very near future, and that there will be the fullest possible cooperation as called for by the needs of the times, from both the 'haves' and the 'have nots'.

"Another possibility that is occupying our production and materials divisions in the OPC is that of reclaiming material and equipment which is either idle, or can be shifted to some employment which will contribute more to the needs of war than the use to which it is now being put. We are hopeful that the benefits flowing from such a program will be found to be quite substantial. I think that anyone who will take the trouble to read the perfectly obvious handwriting on the wall will see that the prospects for next year, from the materials point of view, are even more dismal than they are for the immediate future. Even less will be available, unless all signs fail. Even greater care will have to be taken in the selection of wells to be drilled.

"I don't like to have to make so unpleasant a forecast, but I am unwilling to raise your hopes when there is no basis for it. All that I can offer as comfort is my solemn promise that, subject always to the exigencies of war, the Office of Petroleum Coordinator will do everything that hard work and conscientious study and abundant patience can make possible in the way of minimizing the impacts of the war upon you.

"I assure you that I realize the importance of the independent producer, both in peacetime and in wartime. Upon you we must depend for the lion's share of the wildcatting. To you we must look for virtually all of our secondary recovery now more essential than ever before. I ask you to bend every effort to make the most of our known reserves, and to stimulate the findings of new ones. For my part, I pledge you that your interests will always be protected scrupulously. You and we, your industry and your Government, are facing adventurous days together. No one can say how far we shall succeed. But let it never be said that we have not tried with everything that all of us can give."

Deficiencies in Discoveries Independents' Chief Concern

Excerpts from addresses of several I.P.A.A. general-session speakers appear in this issue. Other speakers and pages on which their remarks are published follow: Frank Buttram, Page 26; Harold B. Fell, Page 26; and Greer W. Orton, Page 27.

By C. O. WILLSON

WICHITA, Kans.—Members of the Independent Petroleum Association of America squarely met the issues which have developed in their business after more than 10 months of war at their thirteenth annual meeting held here October 19-21. With their affiliated organizations they freely discussed every problem in connection with the major objective of supplying this country with adequate oil during the emergency and went on record as to needed actions at Washington and within the industry now and later. Several hundred members from all parts of the country were in attendance.

Uppermost in the minds of the membership who in normal times are accustomed to add tens of millions of barrels of crude oil yearly to the nation's oil supplies was the fact that production under war conditions so far has greatly exceeded new discoveries. Regarding this President Frank Buttram said: "No nation can safely continue to use up its supply of petroleum without making all possible efforts to replace such oil with new reserves against future needs, both for war and for the peace that is to come. Yet that is exactly what we are now doing with complacency that must be alarming to those cognizant of the situation."

The members in their meetings did not draw their punches in discussing what is needed to correct this declining rate of new discoveries. It was made clear that the independent producers as a group must have a better price for their product which will assure a return on their current output to which they are entitled and also justify the expenditure of hazard capital in exploration operations.

In this connection, H. B. Fell, executive vice president, told of the efforts the association has made in Washington in recent months to secure the price consideration to which the industry is entitled. "Your association," Mr. Fell declared, "has hammered on the door of every agency that touches directly or remotely this all-important

Easterners whose transportation and communication facilities were snarled last week and this by floods might well take a leaf from the book of operators in the Wabash River bed. These 30-ft. superstructures, supporting individual gas engines and pumping jacks over each well are on Continental Oil Co.'s property on the Illinois side. The cameraman snapped the picture from Indiana

This Week...

TRANSPORTATION.—OPC encouraged over prospects for eastern extension of emergency line, thinks WPB receptive to logic of affirmative arguments, convinced that minimum East Coast requirements can be met no other way. . . . Tank-car shipments to eastern states decline for third consecutive week. Recent weather obstructions likely to make deeper cut. . . . More than 300 miles of line completed on war-emergency project. . . . Contractors, Government, and industry anxious to keep "big inch" crews together for Illinois-East Coast job. . . . All operators of motor fleets must qualify for War Necessity Certificates, issued by Office of Defense Transportation. . . .

REFINING.—Octane minimum on premium gasoline raised to 80, at request of War Department, recommendation of OPC. Army wants specification fuel available at numerous points. Ethyl Corp. instructions make change mandatory by January 15, 1943, but invite immediate acceptance of new standard. Octane number was lowered to 78 early this year at request of OPC. . . . Operators of Mid-Continent and Middle West plants find crude supplies increasingly scarce. . . . Refinery projects excluded from recent WPB reductions in general steel allocations. Means those in control recognize emergency nature of synthetic-rubber and aviation-gasoline construction, indicates material interference will not be allowed to delay completion. . . .

PRODUCTION.—Permit issued in Oklahoma for thermal secondary-recovery project, involves circulation of superheated air, vaporization of hydrocarbons near well bore. . . . Crude output moves up, stocks continue down. . . . Texas purchasers maintain nominations for November at unchanged level. . . . Question of lease-allowable replacement for per-well proration continued for discussion before Texas Railroad Commission October 29. . . .

PRIORITIES.—Analysis of Priority Regulation 13 shows industry's efforts to effect voluntary redistribution of supplies are blocked, surrounded by red tape, forces special clearance from WPB. . . . I.P.A.A. delegates at Wichita, Kans., for annual meeting told of reorganization that will speed consideration and decision on preference-rating applications. Closer liaison between OPC and other branches of WPB worked out. . . .

REGULATIONS.—Executive order expected soon, giving Coordinator Ickes more authority to coordinate. Not to the extent desired by industry; but an improvement in line with oil men's wishes. Price and rubber administrations apt to remain undisturbed, leaving some overlap. . . . Leon Henderson makes emphatic denial that general thaw of frozen oil prices is imminent. . . .

RUBBER.—Henderson and Jeffers in substantial agreement on policy of providing tires for all essential driving. Outlook for motor-fuel consumption made more specific with one important factor pinned down. . . . Synthetic program going ahead without fanfare of months before Baruch. . . . Rubber Administrator Jeffers mildly optimistic about supply 18 months hence, removes threat of complete immobilization. Tire conservation and mileage rationing programs being woven together, into orderly pattern. . . .

MARKETS.—Distributors in eastern states advised to fill storage. Report spiked by OPA that eastern transportation-price differential would be soon removed. Buyers had held back on purchases to take advantage of lower prices.

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question. The case has been presented in so many ways that I would not attempt a recital. Is it," he asked, "indifference, inertia or ignorance that is responsible for the delay in correcting this monstrous abuse of a delegated responsibility to keep the national economy effective in war time, or is it something more serious?"

The association has completed plans and appointed committees which will make studies of every phase of the production problem and make recommendations as to what needs doing to assure that this country and its allies will have sufficient oil supplies. This it was pointed out involves not only price but supplies of materials, transportation and other operating factors which will play a part in the needed stimulation of exploratory and production activities.

Considerable attention was paid at the meeting to the secondary-recovery situation. A special committee met during the week and outlined proposed legislation to be submitted at the next sessions of the Oklahoma and Kansas legislatures to further the expansion of secondary-recovery operations in the two states.

Discussions brought out that many secondary operations which are entirely feasible from the engineering standpoint are not economic based on present price levels. Reports showed that a worthwhile increase in production in practically all states is possible through secondary-recovery operations with a minimum expenditure of critical materials.

The National Stripper Well Association covered several phases of this situation in approving the recommendations of committees with special reference to the position of 300,000 stripper wells. Resolutions adopted by this organization stated that present prices do not justify the continued operations of many of these wells and do not provide funds necessary for secondary operation in many areas. The association also went on record that current prices "do not justify the recent increases in labor costs or permit stripper-well operators to pay wages competitive with less essential industries."

Opposed to Tax Change

The Independent Petroleum Association which has played an important part in the depletion fight that has been under way in Congress for several weeks reiterated its position in favor of the present depletion allowance and the option of expensing development costs. These were declared to be a "necessary incentive to secondary-recovery and exploration work."

President Buttram paid tribute to the work of Petroleum Coordinator Ickes and criticized the division of authority at Washington in oil matters. "Harold L. Ickes is the best informed person on petroleum problems, is the fairest administrator and the best friend of the industry of all of the members of the Cabinet," President Buttram declared. "He has invariably drawn on the petroleum industry for experienced men to constitute his staff. In the interest of the greatest accomplishment by this industry for the war effort the oil authority should be concentrated, preferably in the Office of Petroleum Coordinator."

"We are mired down in a bog of politics slowing up our advance as surely as the mud of Russia helped stop the first Nazi blitzkreig," Gov. Payne E. Ratner of Kansas declared in the principal address at the annual meeting of the National Stripper Well Association Monday. The governor blamed politics as being responsible for delays in the war program.

"The importance of adequate supplies of petroleum cannot be overstated," the governor declared. "Today soldiers move on oil and gasoline. The air power of America and her Allies can be no power at all without the fuel and lubricants supplied by the petroleum industry."

C. P. McGaha, Wichita Falls, Tex., was reelected president of the National Stripper Well Association for a third term. All the other officers were reelected, including: H. B. Fell, executive

vice president; Howard J. Whitehill, secretary-treasurer, and the following vice presidents: Guy T. Berry, Richard Fenton, Wirt Franklin, William H. Keffer, A. H. Ledbeter, Harry Leonard, Lee Mulvihill and Ralph T. Zook. In addition, three new vice presidents were elected. They are A. S. Ritchie, Wichita, Kans.; Curtis Bryan, Oklahoma City, Okla., and D. J. Noon, Bradford, Pa.

Many refineries in the Middle West and the Mid-Continent are faced either with a complete shut down or a severe curtailment in their operations because of a shortage of crude-oil supplies, according to Wirt Franklin, director of OPC's Production Division in District 2. Mr. Franklin who was the first president of the I.P.A.A. is here as an observer and to participate in some of the studies that are being made regarding production conditions in his district which includes the oil states of Oklahoma, Kansas, Illinois, Indiana and Michigan.

Mr. Franklin expressed concern regarding the crude-oil production trends in his district in which the supplies are far short of the requirements of refiners whose demands have increased because of the large shipments to the eastern states.

The association's labor committee pointing to the shortage of manpower in the oil fields went on record in favor of a 48-hour week. It also favors a set of standards in each state governing methods to be followed in applying for draft deferments so as to assist the various local draft boards. The report emphasized the necessity of maintaining the industry's skilled and technical personnel so that essential oil operations will be continued.

The committee on balance of supply with demand predicted a continuance of present requirements despite rationing. To meet these demands the report said the accomplishment of the following objectives was necessary: Increase substantially the rate of discovery and development of new proven reserves. Prevent the loss of reserves caused by premature abandonment of stripper wells unable to continue operations under present conditions. Encourage and make possible at an early date the increased application of secondary-recovery methods to provide additional available reserves.

The association approved a report commending the work of the Interstate Oil Compact Commission with special reference to the activities of the research and coordinating committee.

Buttram Warns That Discovery Rate Must Be Raised Promptly

A WARNING that the nation cannot safely continue to use its supply of petroleum without making all possible efforts to replace consumption with new reserves against future needs was voiced at the annual I.P.A.A. meeting by Frank Buttram, Oklahoma City, president.

"Although we had sufficient reserves of petroleum to meet immediate demands at the time we entered the war," Mr. Buttram explained, "these reserves cannot last always. We are now and have been for some time using more oil than we are finding."

Mr. Buttram, speaking at the general luncheon meeting October 20, deplored the lag of discoveries behind production.

Wells are being completed at a rate of only 53.8 per cent of the completion rate at this time last year. Quoting a governmental authority, Mr. Buttram said that the discovery of new reserves is running about 80 per cent behind production.

The problem of discovery and others of direct concern to the industry are subjects of diligent effort on the part of the petroleum coordinator for war, Harold L. Ickes, and his staff, Mr. Buttram said. "But," said Mr. Buttram, "there is too much division of authority over petroleum matters in Washington to permit the coordinator to be fully effective." Several other agencies that have authority are the War Production Board, the Office of Price Administration, the Office of Defense Transportation, the War and Navy departments, and some more. "In the interest of the greatest accomplishment by this industry for the war effort, this authority should be concentrated, preferably in the Office of Petroleum Coordinator," Mr. Buttram said.

Himself a member of the Petroleum Industry War Council, which was set up by the petroleum coordinator, Mr. Buttram said that it had been well organized and was of high importance in the analysis of problems affecting the petroleum industry, but that "some of the more powerful units in the industry with great influence on this council have not yet recognized that the council should represent the entire industry. Their efforts have hampered the work of the council to some extent. They are on the whole reasonable and capable men and no doubt will finally become persuaded of the necessity of treating the problems of each separate section of the industry as essential to the whole. If they are not so persuaded soon, then efforts should be made to correct this situation through the coordinator himself."

The Independent Petroleum Association of America and the group from whom it draws its membership have often cried out against monopoly, Mr. Buttram said. The heavy hand of unfair cartels, unnecessary interference by Government, dominance of an industry by a few of the powerful, have become apparent in the operation of many industries during this crisis. "These interferences," Mr. Buttram said, "have been less evident in our own industry. Yet we have had some."

He then referred to the subnormal price of crude oil. It is a deterrent to the continued operation of present fields and it is retarding the finding of new ones. He cited the experience of the first World War, when threat of a shortage of petroleum was obvious. Government and the crude-oil purchasing companies recognized price as the necessary incentive for exploration and the price advances that were made resulted in the finding of new reserves.

Another incentive was provided in the tax laws. Congress in 1917 provided for a depletion allowance for the petroleum industry "in an effort to insure return of capital—and at the same time provide against the hazards of the production of petroleum." The form of the allowance was changed in 1926, has since remained as then enacted.

Unfair Attacks Persist

During this year, the secretary of the treasury and some employes of that department, said Mr. Buttram, "have made persistent unfair attacks upon this provision of our tax laws." The attacks failed, but a representative of the department made a threat to "get" the petroleum industry, even though it would require several years.

"When representatives of an important branch of Government arm themselves and start out with the declared purpose to 'get' an important and essential industry, it becomes oppression and not administration and is dangerous to our form of government," Mr. Buttram asserted.

"Another problem of the producer is that of obtaining supplies," continued Mr. Buttram. Hundreds of independents are without essential materials. He urged that critical materials such as steel be allocated in proportion to the part that the use plays in the war program. Petroleum is of increasing importance. As to the existing supplies whose quantity is uncertain, he recommended that the proper agencies of Government make the necessary surveys and let the facts be known.

"If some in the industry have more than they need they should, for the sake of the industry, make their excess stocks available to those who need them and can use them," Mr. Buttram said. "They should do it voluntarily. If they will not act voluntarily, some means should be devised to point to the error of their way and then they should be required to distribute."

Fell Criticizes Policies Blocking Full Support of War Program

POLICIES that have forced the independent producer into a position where he may not be able to contribute fully to the winning of the war were criticized October 20, by Harold B. Fell, executive vice president of the I.P.A.A., at the Wichita meeting.

In a discussion of the price of crude oil, Mr. Fell said that "your association has hammered on the door of every agency that touches directly or remotely this all-important question."

Mr. Fell declared that without government price-fixing the market for crude petroleum, responding to the necessity for discovering new fields and to meet the increased costs of producing from present reserves, would be at least 50 cents per barrel higher than it now is.

The outlook for supply of crude petroleum—and here Mr. Fell drew a sharp distinction between estimates of proven underground reserves and ability to produce currently, without waste—is for a severe strain on the producing industry. Districts 1 and 5 are producing at maximum as are most states in District 2, he said. Some increase in heavy oil in the Rocky Mountain states is possible without waste, and the same is true of the West Texas-New Mexico area and the Gulf Coast.

"I doubt very much whether it would be possible to produce and deliver from existing wells in the United States over 4,000,000 bbl. per day continuously for any great period of time without wasteful production and it is recognized that there are now fields already producing at a rate that will reduce the ultimate recovery.

"Many have inquired as to . . . the effect of national gasoline rationing on the demand for

crude petroleum. I am unable to see where this will result in any decrease in demand with the possible exception of the more remote producing areas of District 3 and undoubtedly such slight decrease in demand will soon be more than offset by an increase, resulting from the need for additional war products."

"The situation clearly is one," Mr. Fell said, "that calls for discovery of new fields." In this connection he referred to recent proposals for meeting the discovery problem by "establishing a price bonus on newly discovered oil, or on production from wells drilled since November 1, 1941, or by subsidizing discovery effort." He declared that such methods would not work, that they are unrealistic.

"Discovery," Mr. Fell said, "is financed from the sale of the oil production we now have. Wildcatting is hazardous; it has never been a banker's risk. We don't sell stock to the public and get the money with which to drill wildcats. The money comes out of that barrel of oil which is produced and sold, not that which may be found. Unfound reserves meet no payrolls. Past results have indicated that price is the incentive which results in the discovery of new reserves and the ability to increase production without waste. It is a tried and proven method. In time of war, why abandon the tried and proven for the untried?"

"There is no thought of profits now," Mr. Fell declared. "They have been dismissed for the duration. The federal-revenue policy takes care of that consideration, along with taxes we have been paying and will continue to pay to the states and their subdivisions.

"It is more and more apparent," he went on, "that most of the burden of the petroleum supply for the war may be upon the United States. Are we prepared to carry that load? At the immediate moment we are meeting the demand; but we face a dwindling supply and a decreasing production in many areas. In the matter of daily production we obey not acts of Congress or bureau regulations, in the final analysis, but natural laws. However impressive the reserves, they are not a guaranty of continuing adequate rate of production of crude petroleum. The increment of daily production provided by the settled and stripper reserves is essential, but so is that of the flush fields. The time is near when more of the flush fields will be needed. They are not in sight, in the number and location that will be required and they cannot be found overnight.

"Price and supplies, in this emergency," he continued, "are the twins of discovery effort and of continued operation of many thousands of our producing wells. The other twin, supplies, is growing anemic. Stocks are disappearing rapidly. One of the major districts will probably be out of tubular goods in a few months. Last year we asked for equitable distribution of excess supplies, wherever found to exist and the Office of Petroleum Coordinator was asked to attend to this matter. There have been some surveys of stocks, or certain items thereof, with unannounced results and there has been a preliminary move toward distribution. To date the distribution of equipment as between companies who had it and those who lacked has been on voluntary basis. With the scarcity increasing, something more dependable and orderly will have to be done during the emergency."

Present Priority Procedure to Continue Without Change

WICHITA, Kans.—No substantial changes in the present procedure of making supplies available to oil operators and in the handling of materials by supply companies and manufacturers over the balance of this year and the first quarter of 1943 is in prospect, G. W. Orton, director of materials for OPC, told members of the Independent Petroleum Association of America at the general session of the annual meeting October 20. The head of materials said that P-98-B with no major revisions would continue to be used by operators while PD-1-X would serve the suppliers.

Mr. Orton promised operators that revisions in methods of distributing materials would expedite the handling of requests from the industry. Indicating the magnitude of the task with which the materials division and other affiliated agencies were confronted, Mr. Orton said that a survey covering 1941 showed that the petroleum industry's purchase of equipment and materials totaled $850,000,000, a figure which does not include certain extraordinary plant expenditures. The total was divided 350 million production, 376 million refining, 36 million pipe line and 76 million marketing and distribution. One hundred ninety-three million was expended on tubular goods, 138 million for chemicals and 21 million for pipe.

The materials director explained that his division was engaged in compiling data needed to bring about an equitable distribution of available materials. The investigation when completed will cover three important allocation principles. First, the job to be accomplished; second, the materials required and third, the sources of materials.

Indicative of the shortage of materials, Mr. Orton said that the oil industry's requirements for carbon steel for the last quarter were estimated at 641,000 tons and the WPB allocation was 292,000 tons. In the case of alloy steels, the requirement was 38,500 tons and the allocation was 2,500 tons. The industry needed 5,400,000 lb. of copper and copper-base materials for the period and was allocated 2,300,000 lb.

In reply to questions, Mr. Orton said that the industry's information on inventories of materials in the hands of operators and supply companies was not complete. A survey is now being made which will correct this situation under an inventory and requirement program. When this is completed an equitable method of distributing materials in excess of the requirements of owners will be worked out. Mr. Orton said limited new supplies of tubular goods would be available from a few mills in a position to manufacture the goods without interfering with the requirements of war production.

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Order Expected Centralizing Oil-Coordination Authority

WASHINGTON, D. C.—Signs multiplied this week that the White House would soon issue the long-awaited executive order centralizing federal activities pertaining to wartime petroleum matters.

While there was no official word on the subject, a number of persons in position to know the facts have expressed confidence that the order would be forthcoming shortly.

The order, said already to have been drafted and approved by Mr. Ickes, gives him much more control than at present over governmental activities affecting the oil industry, and is believed to extend to authority over gasoline and petroleum product rationing.

Under date of October 1 President Roosevelt wrote Sen. H. C. Lodge, Jr., of Massachusetts:

"I share your view that governmental control and direction of the problem of petroleum supply should be centralized in a single agency. An intensive study has been under way for some time to determine the type of organization best suited to accomplish this objective and so designed as to fit into the over-all pattern of organization of the war agencies. A decision on this matter may be expected in the near future."

From other sources it has been learned that the Bureau of the Budget has prepared an executive order on this subject but that revisions have been suggested by some of the agencies concerned.

Formal Plea Lodged With WPB For "Big Inch" Line Extension

WASHINGTON, D. C.—Prospects for extending the "big inch" crude-oil line of War Emergency Pipelines, Inc. eastward from its present terminus in southern Illinois to the Atlantic Coast refining areas are considered bright by officials of the Office of Petroleum Coordinator.

A detailed recommendation for such an extension was filed by OPC with the War Production Board last week and is scheduled for early consideration. It is understood that this report holds it to be virtually impossible to supply minimum essential demands for petroleum products in the eastern states by ocean tanker, railroad tank cars, inland waterways, or a combination of all three under present conditions. Recent declines in tank-car shipments to the eastern area give weight to this contention, coupled with estimates of the Office of Defense Transportation that tank cars will have to be used for movements of foodstuffs, chemicals and other products this winter which might make it impossible to maintain even the present rate of rail shipments.

It is also not unlikely that the suggestion has been made that such a pipe line would make it possible to load some tankers for England at East Coast ports and thereby shorten the ocean haul from the Gulf. It is recalled that the original pipe-line plan of OPC, which is still in effect, calls on the oil industry to construct both a 24-in. and a 20-in. pipe line from Texas to the New York Harbor area, and allocation of steel for this second line may be sought from WPB in the near future.

Tank-Car Shipments East Suffer Third Successive Drop

WASHINGTON, D. C.—Tank-car shipments of crude and petroleum products to District 1 totaled only 766,410 bbl. daily during the week ended October 10.

This rail movement of oil, the lowest since the week ending July 18, is 2,514 bbl. per day below the deliveries of the preceding week, and is the third successive decline since the peak shipments of 856,710 bbl. per day during the week ended September 19. The decline is said to be due to a variety of causes, including necessary diversions of tank cars to other uses under orders of the Office of Defense Transportation.

Studies of More Efficient Oil-Recovery Methods Feature A.I.M.E. Meeting

Abstracts of several technical papers presented at the meeting of the Petroleum Division, southern California section, A.I.M.E., are published on Pages 46 and 48 of this issue.

By L. P. STOCKMAN

LOS ANGELES, Calif.—Studies of modern recovery methods and factors affecting the efficient production of oil and gas, particularly those influencing or existing in the subsurface reservoir, featured the 2-day meeting here of the Petroleum Division, A.I.M.E., southern California section, October 15 and 16.

Lt. Comdr. Harry P. Stolz, chairman of the Petroleum Division, called the meeting to order and after a few brief remarks turned the gavel over to Howard C. Pyle of Union Oil Co., chairman of the opening technical session. Commander Stolz told the members present that "It is clear that the oil industry has stepped forward admirably to assume the great responsibilities brought by the war, and this can be traced to the concerted work of individuals within the industry. To the extent that this is a technical war and largely a battle for oil, each petroleum engineer and geologist owes it to the community to devote his best talents and efforts toward getting the oil aboveground and to the bases where it is required. The Pacific theater of war makes the California operators particularly aware of these responsibilities. Gasolines, butadienes for rubber, lubricating oils, fuel oils, are all absolute necessities."

Sounds Keynote

E. G. Trostel, conservation engineer, Office of Petroleum Coordinator, Los Angeles, sounded the keynote of the meeting. With a present reserve of approximately 3,000,000,000 bbl. of crude oil, he pointed out that if recovery could be increased 1 per cent it would mean an additional production of 30,000,000 bbl. and that if a 10 per cent increase could be effected it would mean the production of an additional 300,000,000 bbl. the equal of another primary pool.

W. Tempelaar-Lietz, Shell Oil Co., Inc., followed this up in his paper: "Use of P.V.T. Data in Formulating the Production Policy for an Oil Reservoir," by stating definitely that "analysis of various oil reservoirs has shown there is a relationship between the ultimate recovery obtained from the reservoir and the well spacing. Especially in reservoirs of the depletion type, in which the energy required for moving the oil towards the wells is mainly derived from the expansion of gas, originally in solution, the effect of spacing on ultimate recovery has been found to be appreciable. In order to obtain the full advantages of this development, it is essential that the production policy be such as to prevent movement of fluid from one drainage area to the other by adjusting the rates of the individual wells so that the pressures in each of the drainage areas are equal at any time."

The technical program of the Friday morning session was sponsored by junior engineer members of the institute, and was presided over by John Sherborne and James T. Carriell, chairman. Papers were presented on the "Effect of Interfacial Forces on the Flow of Oil Through Water-Wet Sands" by C. A. Arismendi of Shell Oil Co. and P. P. Nibley of Standard Oil Co. of California; "Equilibrium Relations of Natural Gas and Oil at High Pressure and Temperature," by M. B. Standing of Standard Oil Co.; "Effect of Infiltration of Drilling Fluid on Electric Logs," by R. H. Zinzer of Union Oil Co.; "Well Logging by Radioactivity," by John C. Stick, Jr., of Lane-Wells Co., and "Oil-Field Emulsions and Their Electrical Resolution," by Robert L. Pettefer of Petroleum Rectifying Co.

The concluding session Friday afternoon was presided over by L. E. Porter, chairman, and J. F. Dodge, cochairman, and resulted in considerable discussion centering around papers on "Primary Pressure Control" by T. D. Acres and "Application of Laboratory Data to the Problem of Reservoir Performance," by E. C. Babson. Mr. Acres questioned whether it could be definitely shown that initial reservoir pressure control would result in increased recovery from a quantitative point of view. He was of the opinion that increased recovery could be expected by a method of pressure control which will come as indirect evidence from successful secondary-recovery operations.

The final technical session was devoted to a symposium on recovery as affected by production techniques and included Mr. Acres' paper on primary pressure control and its effect on future recovery.

The fall meeting concluded with an informal stag dinner presided over by C. P. Watson, chairman of the southern California section, and was featured by an after-dinner talk by J. H. Marsman, who before the war was a mine operator of the Philippines. Mr. Marsman discussed "The Orient at War," disclosing some off-the-record experiences as a Japanese prisoner and in his escape.

Chairmen of the various committees included E. G. Trostel, papers and program; George W. Nilsson and Leigh M. Battson, arrangements and entertainment; Dwight Whiting and Clarence J. Coberly, finances; Walker S. Clute, publicity, and Walter Abel, secretary-treasurer. Mr. Clute was named secretary-treasurer succeeding Walter Abel, who resigned owing to personal business, but he remains as a director of the section.

Curtis Wilshire photo

C. P. Watson, chairman of the southern California section, American Institute of Mining and Metallurgical Engineers and vice president of Seaboard Oil Co. of Delaware, presided at an informal dinner concluding the Petroleum Division meeting last week at Los Angeles

Minimum Octane Number Raised To 80 on Premium Motor Fuel

NEW YORK.—Minimum octane rating of motor fuel sold under the Ethyl Corp.'s trademark will be increased to 80, A.S.T.M. Method D 357-41 (C.F.R. motor method), effective on or before January 15, 1943, it was announced here this week. Ethyl Corp. has advised refinery licensees of the specification change in letters sent from New York under date of October 16. The minimum octane standard was lowered to 78 octane number early this year at the request of OPC.

A request from the War Department that the minimum specification of gasoline sold under the Ethyl trademark be raised to 80 octane number (A.S.T.M.) in order that supplies of gasoline meeting Army specifications can be available in all localities was relayed to Ethyl Corp. through the Office of Petroleum Coordinator. The OPC recommendation that the change be made was accepted by Ethyl which advised licensees of amendments to two portions of existing agreements. Clause 11, Subdivision B, Paragraph (*e*) of the License and Sales Agreement (Motor) is amended as follows:

"All treated gasoline manufactured under this license shall be colored a distinctive color other than red. Where, however, the treated gasoline manufactured and sold under this license conforms at the time of sale to the distillation specifications for Type B gasoline set forth in A.S.T.M. D-439-40 T, with such seasonal and geographical variations as are contained in that specification, and such gasoline has an antiknock value of not less than 80 octane number by the A.S.T.M. Method D-357-41 (C.F.R. motor method), it may be colored red of a shade and intensity approved by Ethyl, provided that the foregoing minimum specifications of any treated gasoline to be colored red may be changed to Ethyl upon giving 90 days' notice to licensee. Licensee agrees to submit any color or colors used by it for approval of Ethyl."

The other amendment is to Specification IV on Page 1 of the Trademark Authorization and, in the revised form, reads:

"The amount of antiknock compound added in manufacturing such treated gasoline shall be sufficient to give the resultant product at the time of sale an antiknock value of not less than 80 octane number by the A.S.T.M. Method D-357-41 (C.F.R. motor method)."

Shift of Refinery Runs From High to Low-Price Areas Depresses Market

By J. P. O'DONNELL

NEW YORK.—Action of two federal agencies in basing directives on conditions as they existed in the latter part of 1941 may be regarded as an indication that this period has been adopted by the Government as a base for regulating operations of the oil industry. These actions include that of the Office of Petroleum Coordinator in directing that yields of gasoline "be held to 80 per cent of the yield of the last 6 months of 1941" and that of the Office of Price Administration in limiting "the maximum price on each product sold . . . (to) . . . to the lowest quoted price published . . . October 1, 1941."

If conditions as they existed in the last half of 1941 are accepted as a standard for regulating the oil industry, they can at the same time be used as a standard for measuring the effects of restrictions and other wartime developments. One measure of the change in the position of the industry may be obtained from a comparison of the current trend in the value of refined products with the standard which would be the average for the last 6 months of 1941. This comparison provides an accurate and desirable gage because the trend in values of refined products is sensitive to the regulatory actions as well as to other factors resulting from the war.

Factors Influencing Value

The comparison is illustrated in the accompanying chart. Line *A* indicates the average value of refined products for the last 6 months of 1941 while line *B* reflects their actual value from January 1941 to September 1942, inclusive. While it may be assumed from the marked gain in refined-products value in 1941 that the "base" is unreasonably high, it must be remembered that the value rose from an unusual low in January 1941. In that month it was just emerging from its lowest wartime level and actually was below August 1939, the last prewar month. In addition, the peak indicated on the chart was only 2 per cent above the same month 2 years earlier, January 1940.

The relative importance of the factors which have caused the depreciation in the value of refined products is indicated in the 1942 section of the chart. These factors are: (1) Dictated declines in the yield of gasoline and increases in the yield of fuel oil; (2) share of business or declines in the rate of operations in areas of higher-product prices and proportionate increases in the rate of areas of lower values; (3) actual declines in product prices.

During the last 6 months of 1941 the average yields of products from a barrel of crude oil included: Gasoline, 44.6 per cent; kerosene, 4.94 per cent; gas oil and distillates, 13.07 per cent, and residual fuel oil, 24 per cent. In July of this year these yields had been altered so that gasoline amounted to 39 per cent; kerosene, 4.61 per cent; gas oil and distillates, 14.5 per cent, and residual fuel oil, 27 per cent. From a volume standpoint, this means a decrease in the production of gasoline of 12.5 per cent and kerosene of 6.9 per cent against an increase in the production of gas oil and distillates of 10.9 per cent and of residual fuel oil of 12.5 per cent. By reducing the proportion of products, gasoline and kerosene, worth from 3.75 cents to 6 cents per gallon (Gulf Coast) and increasing the proportion of products, gas oil, distillates and residual fuel oil, worth from 2 cents to 3.875 cents per gallon, the effect on the over-all average is obviously downward.

The second factor indicated on the chart is the "share of business" of the refining districts. In the last half of 1941 the combined runs of the Gulf Coast, East Coast, Inland Texas, North Louisiana and Arkansas refining districts represented 52.23 per cent of the United States total. However, in July of this year the combined runs of these districts represented only 44.63 per cent of the total, while the other districts, notably Indiana - Illinois - Kentucky and California, increased. These changes are summarized below:

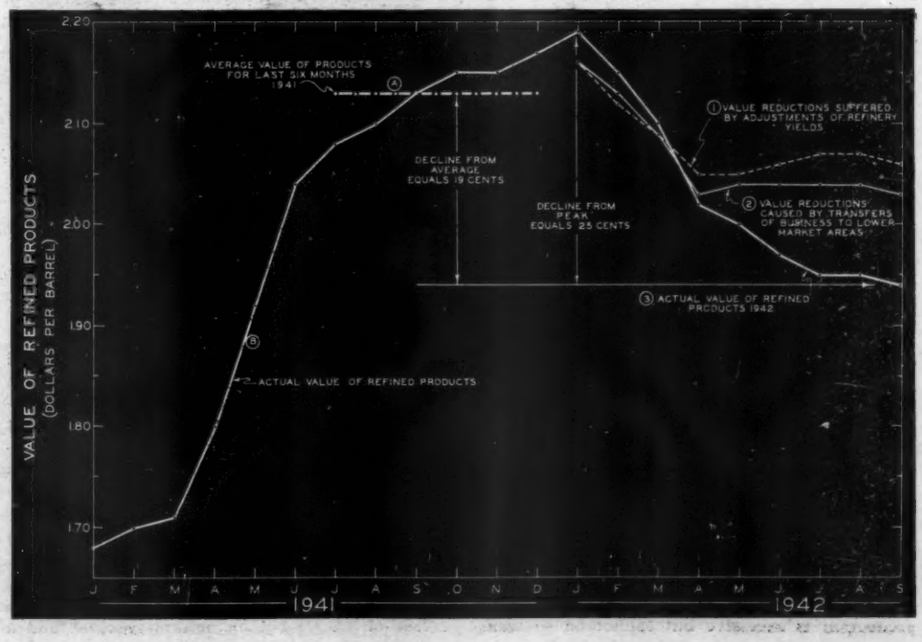
District—	First half 1941	July 1942	Change
Gulf and East Coast, Inland Texas, N. La.-Ark.	52.23	44.63	—7.60
Indiana-Illinois-Kentucky	17.90	20.69	+2.79
California	14.76	17.43	+2.67
Oklahoma-Kansas	8.99	10.18	+1.19
Appalachian	3.72	4.41	+0.69
Rocky Mountain	2.40	2.66	+0.26
Total	100.0	100.00	

The importance of these changes lies in the fact that product prices were generally higher in the areas where the proportion of total runs declined and lower in the areas where the proportion increased. For example, lowest current tank-car quotations on 72-74 octane gasoline in the major refining districts range from 5.25 cents on the Gulf to 8 cents (ex transportation cost allowance) for New York Harbor and on No. 6 fuel oil from 80 cents per barrel in Oklahoma and some California areas to $1.35 for New York Harbor. This shows that East Coast prices (as indicated by New York Harbor quotations) are the highest and that the East Coast is part of the refining area in which the proportion of runs has declined.

Since the American Petroleum Institute and the Bureau of Mines have combined reports on several districts including the East Coast and Gulf areas, it is no longer possible to make an exact division from publicly available information. However, due to transportation difficulties and the closing of some refineries, it is known that East Coast runs have suffered most. It is estimated that runs in that district were as much as 27 to 28 per cent lower in July than during the base period, the last 6 months of 1941. The net result of the decline in runs in the East Coast district of higher prices and the increase in runs in the districts of lower prices, other than the Gulf Coast, has been a decline in the over-all average value of refined products.

The third factor indicated in the chart is prices, some of which are below the October 1, 1941, ceiling and therefore contribute to the depreciation in the value of refined products from the base period. On the Gulf Coast, gasoline prices are well below ceilings because of their failure to recover since the interruption of coastwise shipments caused large increases in stocks and reductions in product quotations. Low prices on the Gulf Coast are of great importance in the composite picture because it has the largest refining capacity in the country. In the last half of 1941 the Gulf Coast proportion of the total domestic runs to stills was slightly less than 30 per cent. Despite the curtailment this year, it is estimated that Gulf Coast refiners are still processing 25 per cent of all the crude run in order to maintain essential war production.

This curve of refined-product value shows the proportion of general reduction caused by adjustments in refinery yields and by the shift of a larger percentage of processing to lower-price areas


AVERAGE VALUE OF PRODUCTS FOR LAST SIX MONTHS 1941
(A)
(1) VALUE REDUCTIONS SUFFERED BY ADJUSTMENTS OF REFINERY YIELDS
DECLINE FROM AVERAGE EQUALS 19 CENTS
DECLINE FROM PEAK EQUALS 25 CENTS
(2) VALUE REDUCTIONS CAUSED BY TRANSFERS OF BUSINESS TO LOWER-MARKET AREAS
(3) ACTUAL VALUE OF REFINED PRODUCTS 1942
(B)
(B)—ACTUAL VALUE OF REFINED PRODUCTS
VALUE OF REFINED PRODUCTS (DOLLARS PER BARREL)
2.20
2.10
2.00
1.90
1.80
1.70
J F M A M J J A S O N D J F M A M J J A S
1941
1942

STATE CAPITALS...

TEXAS

THE RAILROAD COMMISSION continued its hearing on changes in proration of producing properties to better meet the war effort to October 29 after listening to proposals to change the method of allocation from a daily to a monthly basis, to transfer allowables from wells making large quantities of water to other wells and to transfer well allowables to other wells on the lease when it was impossible for operator to secure pumping equipment. None of the suggested changes was without opposition.

Principal problem is the East Texas field where over 200,000 bbl. of salt water is being produced daily and, according to some of the operators, depriving the reservoir of that much energy. According to Joe Zeppa, Delta Drilling Co., the elimination of all wells producing over 200 bbl. of salt water daily would result in a loss of production of only 12,000 bbl. daily. Transfer of the allowable of these wells to nonwater wells in the field would result in no harm to the reservoir. Actually, according to Mr. Zeppa, if the high water-oil wells were shut in, the production of the field could be increased from 100,000 to 150,000 bbl. of oil daily without danger of harming the pool.

Mr. Zeppa, evidently speaking for a cross-section of operators, presented his plan to the commission and copies of the text are being mailed to operators so they may be prepared to discuss it when the meeting reconvenes October 29. Briefly, it would permit the transfer by the operators of the allowable for high water-oil wells to other wells in the pool which make no water. The plan would be optional although the operators making the transfer would probably be forced to pay double royalty. This added expense would be returned to the operator in the form of decreased production costs.

Testimony at the hearing brought out that the plan to reinject 200,000 bbl. of salt water daily in the East Texas field was slow getting under way and that it will be the middle of 1943 before this volume is reached. By this time it had been hoped that 100,000 bbl. daily would be returned to the reservoir but at the present only 40,000 bbl. was going back into the formation.

A further increase in the production from the field to help fill the 24-in. pipe line (scheduled for completion around January 1, 1943) would result in damage to the field unless something is done to prevent the dissipation of reservoir energy through needless water production.

The suggestion to transfer the allowable system from a per-well to a lease basis where the operator could not obtain needed pumping equipment was not without its opposition, representatives of the East Texas independent operators voicing the opinion that existing regulations should be maintained and that exceptions, after hearing, could be granted where it was found impossible to comply with the present rules. Under present regulations the allowable can be transferred from one well to another on the lease if the water production is excessive but cannot be so transferred because of a lack of producing equipment.

A monthly proration schedule instead of the daily schedule now in force was suggested so that greater use could be made of the available manpower. This would permit the operator to produce his well throughout the month instead of on the operating days as set out by the commission. A tolerance of 25 to 35 per cent was suggested with the operator being permitted to make up underage during the ensuing 30-day period. Some operators stated that under such an arrangement they could get the allowable production from many wells in 15 days and it would amount to a substantial improvement in the results obtained from their producing personnel. There was some contention that instead of hurting the reservoirs, it would actually produce a more efficient operation.

West Texas operators suggested that it would permit wells in that area to be operated with a lower gas-oil ratio and since the allowable was fixed by the commission there would be no temptation (such as in the days before proration) to produce the wells wide open.

Commissioner Olin Culberson objected to the monthly plan as one leading to inequitable withdrawals and a flood of lawsuits. Under such a proposal, Mr. Culberson pointed out, it would be possible for an operator to produce a 900-bbl. allowable in 1 day with resulting damage to neighboring properties. Mr. Culberson suggested the elimination of the specified shutdown days from the commission schedule with the operators being permitted to produce the allowables equitably over a specified period. Thus, if there were 22 producing days in a month, an operator could take any 22 successive days in the month during which to get his production.

CONTROL OF OUTDOOR industrial operations which emit light, including gas flares and sludge-pit fires was ordered last week in the counties of Aransas, Brazoria, Calhoun, Cameron, Chambers, Galveston, Harris, Jackson, Jefferson, Kenedy, Kleberg, Liberty, Matagorda, Nueces, Orange, Refugio, San Patricio, Victoria, and Willacy.

The order, issued by Maj. Gen. Richard Donovan, commanding the Eighth Service Command, Fort Sam Houston, provides that "as far as practicable outdoor industrial operations . . . which emit light, will be shielded or limited to daylight hours."

The "dimout" area bordering the Gulf of Mexicon includes Louisiana parishes from New Orleans to the Texas border and inland to Baton Rouge.

STOCKS OF PETROLEUM in Texas at the end of September were 16,527,098 bbl. higher than a year ago when the total reported in both instances by the Railroad Commission stood at 135,240,237 bbl. Chiefly responsible for the overall increase is a gain of 12,211,951 bbl. in stocks of crude oil. Higher inventories of other products were reported as follows: Gasoline, 6,038,433 bbl.; kerosene and distillate fuel oil, 1,097,221 bbl., and miscellaneous products, 411,461 bbl.

Inventories reported by the commission show a decline of 2,019,362 bbl. in residual fuel oil; a decrease of 425,945 bbl. in natural gasoline, and a reduction of 786,661 bbl. in cracking stock.

The commission report includes inventories reported by refineries, pipe-line tank farms and terminals, pipe lines, natural-gasoline plants, and by recycling and repressuring operators.

TEXAS PETROLEUM INVENTORY

(Figures in barrels)

	Stocks, except lease storage	
Product—	Sept. 1, 1942	Sept. 1, 1941
Crude	93,086,413	80,874,462
Cracking stock	2,884,809	3,671,470
Gasoline	18,394,090	12,355,657
Kerosene, distillate fuel	16,721,147	15,623,926
Fuel oil	9,926,207	11,945,569
Natural gasoline	1,390,492	1,816,437
Miscellaneous	9,364,177	8,952,716
Total	151,767,335	135,240,237

OKLAHOMA

MARKET DEMAND for crude oil and distillate in the various pools in the state during November will be determined at the regular monthly Corporation Commission hearing in Oklahoma City, October 29. Producers have been asked to come prepared to give testimony on allowables, if necessary, on the various comparatively new pools.

AUTHORITY TO INSTALL and operate a thermal secondary-recovery system was granted last week by the Corporation Commission to E. W. Hartman. The permit applies to leases on 310 acres in 30-28n-14e, Washington County, Oklahoma, where 48 wells producing from the Wayside sand at approximately 550 ft. have declined to an average output of ¼ bbl. per day per well.

The process authorized for installation on the property was briefly described by the Corporation Commission Order 15927 as follows:

The system consists of one large compressor, one large superheating coil, and one string of 4-in. pipe inside of the 6¼-in. casing. The 4-in. is capped at the bottom to prevent the escape of hot air into the formation. The heat is delivered through a 2-in. pipe from the surface to within 3 ft. of the bottom of the 4-in. pipe. As this heat is released continuously in the 4-in. pipe it comes up and is drawn off near the top of the 4-in. casing and escapes into the atmosphere through a 30-lb. check valve. Nothing is released in the formation.

The heat reaches the bottom of the 4-in. pipe at a temperature of approximately 1,000°; the water and oil already in the formation surrounding the heat exchanger is turned into hydrocarbon gas and hot vapors, which are rapidly driven through the formation, breaking up the congealed oil and forcing it to the surrounding wells.

The pressure created by the heating and expansion of the oil and water develops a pressure at the point of operation ranging from 1,000 to 5,000 lb. The creation of this superheated air is done first by a large air compressor, which drives the air through a large superheater. When the air leaves the superheater, it is about 1,200° F. It is then carried by a 2-in. pipe through and into the 4-in. pipe.

KANSAS

PRODUCERS AND PURCHASERS have been called to a state-wide proration hearing at the Allis Hotel, Wichita, October 27 and asked to submit testimony before the Corporation Commission on conservation questions, market demand for crude, and related topics.

The OIL AND GAS JOURNAL

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Dangerous Suggestion

One of the most dangerous suggestions that has come from government sources is that ceilings for certain refined products be based on delivered rather than plant quotations. Under this plan no consideration would be given to normal refinery marketing practices, and ceilings would be determined on some arbitrary basis at the points of consumption.

Petroleum marketing in this country involves every well and every field in 22 states. It is of concern to operators of 460 refineries and several hundred natural-gasoline plants. It relates to the oil industry's transportation system of pipe lines, railways, waterways, and trucks. All American homes consuming one or more petroleum products, and millions of foreign customers, have a direct interest in any marketing changes.

Every one of these producers and consumers contributes in the establishment of the oil industry's marketing procedure. It has enabled this industry with an extremely complicated supply system to meet all demands in a satisfactory manner.

The particular situation to which complaint has been made has to do with the custom of basing contract and spot sales of products in the Middle West and the Southwest on Oklahoma (Group 3) quotations f.o.b. plants. Under this practice, which was established a quarter-century ago when the Mid-Continent became a major producing and refining area, quotations prevailing in this rail-rate grouping are accepted as basic. Normal delivered prices, always subject to widespread competition within and outside the area, are determined by adding the rail-transportation charges.

This marketing procedure does not differ in any essential respect from that prevailing and accepted in the marketing of the principal farm products and many other commodities which are produced and consumed on a national scale.

It has been contended by representatives of the Government's pricing agency that Group 3 should not be recognized in determining ceilings except as the interstate shipments originate within that group. This contention indicates that these observers have entirely missed the significance of this pricing policy.

The use of Group 3 is a trade practice which is not of itself highly important, nor is it controlling in the merchandizing of petroleum products in the Southwest and Middle West, where the demands exceed the Oklahoma refinery output many times.

Group 3's contribution to the establishment of market levels in this large consuming area is in direct proportion to its percentage participation in the total market. Adjoining refining areas make full use of any advantage they have in production and transportation, with the low prices prevailing positive proof that consumers benefit directly from the strong competitive situation which this arrangement fosters.

Any benefits to consumers under the proposed change are certain to be selective and temporary. Should subnormal quotations be used in determining ceilings at selected points, the effect would be to end competition and establish monopolies in those areas with the sections less favorably located in regard to oil supplies paying substantially more for their products.

No one will permanently benefit from any program which seeks to destroy Group 3 and other marketing bases. They have given operators the flexibility and stability which account for this industry's steady growth.

The war's confusion should not be permitted to bring about the adoption of marketing methods which will not serve the emergency and which will bring regrets in the postwar period. If adopted, these changes may become the road that leads to permanent control of the industry: prices.

Supply Exchange Hampered By War Board Regulation 13

By H. STANLEY NORMAN

Obstructions to the voluntary redistribution of equipment inventories contained in Priority Regulation 13 are pertinent this week because of WPB insistence that a larger share of supply requirements should be taken from industry warehouses and pipe yards.

This analysis deals with the interference of Regulation 13 to exchange and sale of supplies even to the extent that some operators are obtaining faster service on ratings for new materials than can be obtained on Form PD-470 applications.

PRIORITIES Regulation 13 apparently carries all the ill omen for the petroleum industry that its number connotes. Until the "unlucky" regulation was issued, the petroleum industry was interchanging its inventory in a manner that cushioned the general shortage of critical supplies—not completely, but after a fashion.

But now, after Regulation 13 has been in effect a month, interpretations and lawyers' opinions disclose that the new order practically prohibits the very transactions that it was designed to encourage and implement. Regulation 13 was issued September 23 and its purpose was to "provide uniform rules governing special sales of idle or excess materials by persons who are not regularly engaged in the business of selling such materials." Probably without forethought, which critics of Regulation 13 and other similar orders say is becoming annoyingly frequent, the War Production Board practically halted the exchange and intraindustry sale of petroleum supplies from company inventory.

Enunciations from the Office of Petroleum Coordinator and the WPB have encouraged widest possible distribution of material inventories within the petroleum industry in order to obtain maximum operations with minimum use of critical materials. In fact, until a few weeks ago there was serious consideration accorded a compulsory pooling plan for equipment in the hands of the industry. The program, known as the Huff plan, envisaged redistribution of the industry's total equipment supplies on an equitable basis determined by development requirements, forcing those with stocks to share with those dependent on current purchases and thus reduce the drain on new steel.

Exchanges Previously Encouraged

Exchanges, loans and intraindustry sales of equipment, long practiced among oil operators as a matter of convenience, were vastly expanded during the third quarter of this year for several reasons. They were: (1) Discussions indicated that compulsory pooling was imminent. (2) An inordinate number of operators were exclusively dependent on inventories for supplies required in authorized drilling and producing operations. (3) Equipment stocks of some companies were found excessive for the present reduced rate of operations. (4) Inestimable pressure was exerted by operators short of supplies to force companies with equipment in inventory to share materials, often through federal-agency suasion.

Carbon steel in any single lot of more than five short tons, Regulation 13 provides, may not be transferred by "special sale" to another consumer except on a Preference Rating AA-2x, the highest nonmilitary rating in the priority system and, with one exception, assignable only by the WPB director general for operations. The classification "carbon steel" covers a majority of the oil industry's tubular goods and company attorneys and WPB officials have interpreted the order to apply to most casing, line pipe, tubing and many other items. The emphasis on casing results chiefly from the consensus of industry purchasing agents that pipe offers the widest opportunities for exchange, loan and intraindustry sales to the mutual interest of seller, buyer and the war effort.

Preference Rating AA-2x is available to the petroleum industry only on special assignment by the WPB and, consequently, requires special handling in Washington. Under terms of Priorities Regulation 13 as amended to September 23, companies wishing to sell casing or other carbon-steel equipment to another operating consumer must first make application on Form PD 470. Frequently the application reposes in Washington for 2 or 3 weeks and is then either honored, rejected or returned for additional information. Many applications originating from operators in the Mid-Continent have been returned to the applicant for more data, usually with the notation that the purpose for which the material is to be used is not sufficiently clear. Companies with materials in stock are partially motivated in applying for permission to make a special sale by willingness to assist contemporaries in a material way. Under Regulation 13, however, which requires the vendor to prove justification for the special sale, the red tape, time, clerical diversion and other expense involved in obtaining WPB approval outweighs the inherent desire of oil men and companies to aid other operators.

Moreover, the Office of Price Administration has ruled that removal of equipment from inventory for use on jointly owned properties constitutes a sale. Under this interpretation, Company A, operating a property for a joint account and holding in its warehouse and material yards all supplies necessary for drilling a well, must obtain Regulation 13 approval before using pipe or other equipment in the development. This restriction prevails despite the fact that the operation may otherwise qualify in all respects under Conservation Order M-68.

To illustrate some of the confusion caused by Regulation 13, an actual case is cited here. Company A owned and held in inventory a quantity of 16-in. conductor pipe. The large casing has rested in its yards for some time because of a general change in its operating program which called for use of 10¾-in. surface pipe. Company B had an excess of 10¾-in. pipe but required 2,000 ft. of 16-in. for a specific task. The two companies agreed to exchange 2,000 ft. of both sizes of pipe, giving each concern something that was usable in their operations and, in the case of Company B, furnishing a necessary string of casing for its particular job. Form 470 originated by Company A was returned to the applicant after 3 weeks' delay for more specific information as to the intended use of the 16-in. pipe. Meanwhile, Company B, assuming the long delay connoted rejection of Company A's application, found the necessary 16-in. pipe at a dealer's yard, used the P-98-b priority machinery available to it and had the casing in service when the request for more information on the exchange proposal finally came through.

Affiliated companies, for instance producing and pipe-line subsidiary units under the same management and essentially the same ownership, are prohibited from exchanging or loaning equipment to each other without specific approval to a Form 470 application by the WPB. Recently, the transportation unit of a fully integrated company needed some pipe to complete a project. The pipe was available from its affiliated producing unit but transfer, under terms of Regulation 13, could not be made without special approval of the WPB.

OPA Interpretation on Sale

Ruling of OPA that the owner of supplies held in inventory may not allocate the equipment to an operation jointly controlled with other partners without going through the details of selling them their respective interest in the material is causing inordinate delays. In some instances operators jointly engaged in development have used P-98-b preference ratings to expedite delivery of materials from wholesalers' stocks which could have been procured from the inventory of one of the partners.

Regulation 13 contributes to an untenable situation. In order to use its inventory material, the oil industry, on the one hand, must endure delays, furnish data which theoretically qualifies operations for the highest nonmilitary priority rating obtainable and at the same time enter equipment selling, a phase of the industry foreign to operating companies. The alternative to strict observation of Regulation 13 is for the industry to obtain whatever material possible and necessary under its P-98-b basic priority order which, under present circumstances, places the burden of supply on manufacturers of new equipment.

All companies are not in complete agreement on interpretation of Regulation 13. Most concerns, however, literally bending over backward to escape punitive action, are looking at the letter of WPB regulations and ignoring the intent. Each is anxious to avoid the role of guinea pig if the time ever comes for dissection of the industry by the Department of Justice.

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Ickes, Davies, Eastman And Boyd to Address A.P.I. Annual Meeting

THE preliminary program for the American Petroleum Institute's twenty-third annual meeting, to be held at the Palmer House, Chicago, November 9 to 12, discloses that it will be in all respects a "war convention of the petroleum industry." All three of the general sessions and most of the nine group sessions scheduled for the meeting will be devoted to reports of the past results of, and the future plans for, the wartime operation of the industry, and in particular to a detailed explanation of the close working relationship between the industry and the Office of Petroleum Coordinator.

Petroleum Coordinator Harold L. Ickes, Deputy Coordinator Ralph K. Davies, and the 17 assistant deputies, special assistants, and directors of OPC divisions will speak at two of the general sessions, on the afternoons of November 11 and 12.

Joseph B. Eastman, director of the Office of Defense Transportation, will address a special evening session on November 11.

President William R. Boyd, Jr., will discuss the Institute's work, and also the activities of the Petroleum Industry War Council, of which he is chairman, at the first general session, November 11.

Group sessions of divisions and departments this year are moved up so that all proceedings can be completed on Thursday afternoon, cutting the meeting to 4 days from 5.

The preliminary program follows:

Monday, November 9

GROUP SESSION

8 p.m.

PROTECTION OF PETROLEUM FACILITIES

Wartime facility security: (Sponsored by the committee on protection of petroleum facilities of the Petroleum Industry War Council). Presiding: W. S. Farish, Standard Oil Co. (New Jersey), New York.

The Army's Internal-Security Program: Col. H. G. Reynolds, Provost Marshal General's Office, Washington.

The OCD Facility Security Program: Philip Bastedo, deputy director, Office of Civilian Defense, Washington.

The Coast Guard's Program on Port Security: Rear Adm. Stanley V. Parker, U. S. Coast Guard, New York.

Industry's Responsibility in Facility Security: Bruce K. Brown, assistant deputy coordinator, Office of Petroleum Coordinator for War, Washington.

GROUP SESSION

8 p.m.

AUTOMOTIVE TRANSPORTATION

Wartime transportation: (Sponsored by the central committee on automotive transportation). Presiding: Leo Huff, Pure Oil Co., Chicago.

Wartime Regulation of Petroleum Carriers: S. F. Niness, Office of Defense Transportation, Washington.

Wartime Automotive Maintenance: R. S. Williams, Office of Defense Transportation, Chicago.

Wartime Problems of Petroleum Carriers: J. F. Winchester, Standard Oil Co. of New Jersey, New York.

Tuesday, November 10

GROUP SESSION

2 p.m.

DIVISION OF REFINING

Research: A Four-Year Summary of Hydrocarbon Research: C. E. Boord, Ohio State University, Columbus, Ohio.

Physical Properties of Hydrocarbons in the Gasoline Boiling Range: Mr. Boord.

Method for Analyzing the Gasoline Fraction of Petroleum, With Preliminary Results on East Texas and Oklahoma Crudes: F. D. Rossini, B. J. Mair, A. F. Forziati, A. R. Glasgow, Jr., and C. B. Willingham, National Bureau of Standards, Washington.

Synthesis and Properties of Hydrocarbons of High Molecular Weight—II: R. W. Schiessler, J. N. Cosby, D. G. Clarke, C. H. Herr, C. S. Rowland, and W. S. Sloatman, Pennsylvania State College, State College, Pa.

GROUP SESSION

2 p.m.

DIVISION OF PRODUCTION

Drilling and production practice: (Sponsored by the central committee on drilling and production practice). Presiding: Paul D. Torrey, consulting engineer, Houston, Tex.

A Review of Recent Advances in Drilling-Mud Control: Preston E. Chaney, Sun Oil Co., Beaumont, Tex.

A National Survey of Dual-Well Completions: W. A. Alexander, Shell Oil Co., Inc., Houston, Tex.

Prediction of the Shrinkage of Crude Oils: D. L. Katz, associate professor of chemical engineering, University of Michigan, Ann Arbor, Mich.

Hydration-Pressure Relationships in Clays and Heaving Shales: H. H. Power, professor of petroleum engineering; Barnaby L. Towle, Shell research fellow; Joseph B. Plaza, graduate student, University of Texas, Austin, Tex.

Note: Open discussion will follow presentation of each paper.

Wednesday, November 11

9:30 a.m.

GROUP SESSION

DIVISION OF REFINING

Corrosion Protection of Storage Tanks: F. L. Newcomb, Standard Oil Development Co., Elizabeth, N. J.; C. F. Kelly, Humble Oil & Refining Co.; Baytown, Tex.; and E. S. Dixon, Texas Co., Port Arthur, Tex.

The Thermofor Catalytic Cracking Process: T. P. Simpson, L. P. Evans, C. V. Hornberg, and J. W. Payne, Socony-Vacuum Oil Co., Inc., Paulsboro, N. J.

Critical Analysis of Sweetening Processes and Mercaptan Removal: John Happel, S. P. Cauley, and H. S. Kelly, Socony-Vacuum Oil Co., Inc., Brooklyn, N. Y.

GROUP SESSION

9:30 a.m.

DIVISION OF PRODUCTION

Pipe-line transportation problems: Presiding: C. H. Kountz, Sinclair Refining Co., pipe-line department, Independence, Kans.

Address: Maj. J. R. Parten, director of Transportation Division, Office of Petroleum Coordinator, Washington.

An Analysis of Certain Circuits in Cathodic Protection: Gordon N. Scott, pipe-line technologist, Los Angeles, Calif.

Volumetric Practice in the Petroleum Industry: E. E. Ambrosius, University of Kansas, Lawrence, Kans., and E. W. Jacobson, Gulf Research & Development Co., Pittsburgh, Pa.

Note: Open discussion will follow presentation of each paper.

GROUP SESSION

10 a.m.

DIVISION OF PRODUCTION

Conservation and allocation practices: Presiding: F. E. Heath, Sun Oil Co., Dallas, Tex.

Present Allocation Practices in the Various States: D. R. McKeithan, Phillips Petroleum Co., Bartlesville, Okla.

Coordination of Conservation Practices in Various States: E. G. Dahlgren, secretary, research and coordinating committee, Interstate Oil Compact Commission, Oklahoma City, Okla.

Note: Open discussion will follow presentation of each paper.

10 a.m.

BOARD OF DIRECTORS
BOARD OF COUNCILLORS

Meeting of board of councillors to nominate candidates for election as members of the board of directors.

GENERAL SESSION

2:30 p.m.

General session: Report of board of councillors and election of directors.

Address: William R. Boyd, Jr., president, American Petroleum Institute; chairman, Petroleum Industry War Council.

Address: Hon. Harold L. Ickes, secretary of the interior, petroleum coordinator for war, Washington.

GENERAL SESSION

8 p.m.

Address: Hon. Joseph B. Eastman, director of the Office of Defense Transportation, Washington.

Address: Speaker to be announced.

Thursday, November 12

GROUP SESSION

9 a.m.

DIVISION OF PRODUCTION

Office of Petroleum Coordinator for War:
E. DeGolyer, assistant deputy coordinator.
D. R. Knowlton, director of production.
E. Holley Poe, director of Natural-Gas and Natural-Gasoline Division.
William B. Heroy, director of Reserves Division.
Greer W. Orton, director of materials.

Report of division's nominating committee: H. S. Moss, H. S. Moss Petroleum Co., Dallas, Tex., chairman.

Election of 20 members of the general committee of the Division of Production.

Note: Open discussion will follow presentation of each paper.

Working together for war

Pennzoil Company, in cooperation with Quaker State Oil Refining Corp., Wolf's Head Oil Refining Company and Continental Refining Company, are making extensive alterations and additions to their jointly-owned cracking plant and in cooperation with the government are erecting new facilities —OIL AND GAS JOURNAL, August 13,1942 issue

That's a new wartime chapter in a story that began in 1931 when those four Pennsylvania refiners built the world's first cooperative cracking unit, under license from Universal, to crack the oils from their respective plants to the best advantage of all It was successful from the start

In 1939, its cracking capacity was largely increased and a U.O.P. catalytic polymerization unit was installed At that time J P O'Donnell wrote in Oil and Gas Journal:

> The plant has operated to the complete satisfaction of the four participating companies

And it has done so ever since

Now Universal refining specialists are helping in the conversion of the plant to war production, as they have helped all the way along

OIL IS AMMUNITION—USE IT WISELY

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

THE REFINERS INSTITUTE OF PETROLEUM TECHNOLOGY

GROUP SESSION

9:30 a.m.

DIVISION OF REFINING

Looking Ahead at Refining: Bruce K. Brown, assistant deputy coordinator, Office of Petroleum Coordinator.

Paper: Speaker to be announced.

Refinery Construction in Wartime: Max B. Miller, chief, equipment-procurement section, Refining Division, Office of Petroleum Coordinator.

Refinery Conversion for War: T. G. Delbridge, chairman, technical advisory subcommittee of the committee on synthetic rubber of the Petroleum Industry War Council, Atlantic Refining Co., Philadelphia, Pa.

Report of Division's Nominating Committee: L. L. Davis, Continental Oil Co., Ponca City, Okla., chairman.

Election of 20 members of the general committee of the Division of Refining.

10 a.m.

EXECUTIVE COMMITTEE

GENERAL SESSION

2 p.m.

Address: Ralph K. Davies, deputy petroleum coordinator, Washington.

Presentation of, and brief remarks by, members of the staff of the Office of Petroleum Coordinator: Robert E. Allen, assistant deputy coordinator; Bruce K. Brown, assistant deputy coordinator; E. DeGolyer, assistant deputy coordinator; J. Howard Marshall, chief counsel; J. Elmer Thomas, special assistant; John W. Frey, special assistant, D. R. Knowlton, director of Production Division; E. Holley Poe, director of Natural-Gas and Natural-Gasoline Division; J. R. Parten, director of Transportation Division; Robert T. Collier, director of Marketing Division; Robert L. Minckler, director of Petroleum Supply Division; Greer W. Orton, director of Materials Division; James T. Duce, director of Foreign Division; William B. Heroy, director of Reserves Division; Edward B. Swanson, director of Research Division; Gordon M. Sessions, director of Public Relations Division; William D. Mason, director of Facility-Security Division.

COMMITTEE MEETINGS

(Time scheduled subject to change)

Special note. — Other committees, not listed hereinafter, may hold meetings, which will be announced in the final program. All committee members individually will be notified of the time and place of meetings now assigned or which may be assigned.

Monday, November 9

9 a.m. — Committee on the standardization of tanks for oil storage. Room 796. Chairman, C. C. Ashley; secretary, H. M. Stevenson.

9 a.m.—Special study committee on well spacing and allocation of production (tentative). Private Dining Room 11. Chairman, F. E. Heath.

9 a.m.—Engineers' subcommittee on pipe. Private Dining Room 5. Chairman, H. W. Ladd; secretary, P. A. Mills.

9 a.m.—Joint meeting. Private Dining Room 14. Steel-derrick manufacturers' subcommittee. Chairman, C. R. Athy. Subcommittee on speed reducers. Chairman, E. N. Kemler.

9 a.m.—Advisory committee on fundamental research on occurrence and recovery of petroleum. Private Dining Room 18. Chairman, E. G. Gaylord; secretary, C. A. Young.

9 a.m.—Pipe manufacturers' subcommittee. Private Dining Room 17. Chairman, J. Jay Dunn; secretary, W. O. Clinedinst.

9 a.m.—Topical committee on production technology. Private Dining Rooms 15-16. Chairman, W. F. Rogers.

9 a.m.—Conference subcommittee on accounting regulations (of the central committee on pipe-line transportation) (tentative). Room 789. Chairman, Fayette B. Dow.

10 a.m.—Automotive research committee. Private Dining Room 9. Chairman, K. G. Mackenzie; secretary, R. P. Anderson.

Afternoon

12:15 p.m.—Correlating committee on measuring, sampling, and testing crude oil (luncheon) (tentative). Private Dining Room 1. Chairman, W. R. Trelford; secretary, C. A. Young.

2 p.m.—Steel-derrick manufacturers' subcommittee. Room 788. Chairman, C. R. Athy.

2 p.m.—Central committee on the standardization of oil-field equipment. Private Dining Room 18. Chairman, J. Edgar Pew; secretary, C. A. Young.

2 p.m.—Committee on standardization of refinery equipment. Private Dining Room 9. Chairman, A. E. Pew, Jr.; secretary, R. P. Anderson.

2 p.m.—Subcommittee on secondary recovery (of the topical committee on production practice) (tentative). Private Dining Rooms 15-16. Chairman, Paul D. Torrey.

Evening

8 p.m.—Central committee on refinery technology. Private Dining Room 9. Chairman, T. G. Delbridge; secretary, R. P. Anderson.

8 p.m.—Joint meeting (tentative). Private Dining Rooms 15-16. Executive committee (of the central committee on drilling and production practice). Chairman, Paul D. Torrey; secretary, C. A. Young. Program committee (of the central committee on drilling and production practice). Chairman, F. E. Heath; secretary, C. A. Young.

8 p.m.—Subcommittee on speed reducers. Room 777. Chairman, E. N. Kemler.

Tuesday, November 10

Morning

9 p.m.—Central committee on pipe-line transportation. Private Dining Room 18. Chairman, C. H. Kountz; secretary, C. A. Young.

9 a.m.—Joint A.S.M.E.-A.P.I. subcommittee on volumeter research. Room 782. Chairman, L. S. Wrightsman.

9 a.m.—Joint meeting. Private Dining Room 17. Engineers' subcommittee on pipe. Chairman, H. W. Ladd; secretary, P. A. Mills. Pipe manufacturers' subcommittee. Chairman, J. Jay Dunn; secretary, W. O. Clinedinst.

9 a.m.—Central committee on automotive transportation. Private Dining Room 8. Chairman, Leo Huff; secretary, D. V. Stroop.

10 a.m.—Lubrication committee. Private Dining Room 7. Chairman, L. C. Welch; secretary, R. A. Ludlow.

10 a.m.—American Petroleum Industries Committee. Private Dining Room 11. Chairman, Harry T. Klein; secretary, Edwin S. Hall.

11 a.m.—Advisory committee on fundamental research on the composition and properties of petroleum. Private Dining Room 9. Chairman, J. Bennett Hill; secretary, R. P. Anderson.

Afternoon

12:15 p.m.—General committee, Division of Production (luncheon). Private Dining Room 18. Chairman, George A. Hill, Jr.; secretary, C. A. Young.

2 p.m.—Manufacturers' subcommittee on portable masts. Room 788. Chairman, C. R. Athy.

2 p.m.—Subcommittee on sucker rods. Room 777. Chairman, D. R. Dale.

3:30 p.m.—Central committee on district activities. Private Dining Rooms 15-16. Chairman, D. T. Ring; secretary, C. A. Young.

4:30 p.m.—General committee, Division of Refining. Private Dining Room 9. Chairman, J. Howard Pew; secretary, R. P. Anderson.

Wednesday, November 11

Morning

9 a.m.—Joint meeting. Room 796. (Main) Subcommittee on valves and fittings. Group 2: Subcommittee on production valves. Chairman, W. S. Crake.

Afternoon

12:15 p.m.—Committee on motor fuels (luncheon). Private Dining Room 7. Chairman, Conger Reynolds; secretary, Arnold R. Daum.

4:30 p.m.—Nominating committee, Division of Refining. Private Dining Rooms 15-16. Chairman, L. L. Davis; secretary, R. P. Anderson.

4:30 p.m.—Nominating committee, Division of Production. Private Dining Rooms 15-16. Chairman, H. S. Moss; secretary, C. A. Young.

Thursday, November 12

Afternoon

12:15 p.m.—Joint meeting (luncheon). Private Dining Rooms 15-16. Executive committee (of the central committee on drilling and production practice). Chairman, Paul D. Torrey; secretary, C. A. Young. Program committee (of the central committee on drilling and production practice). Chairman, F. E. Heath; secretary, C. A. Young.

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Secondary Recovery in East Kansas Grows in Importance

(Continued from Page 23)

Oil Co., with 12 input wells, has 450 bbl. daily in the Seeley pool, from Bartlesville sand at 1,903 to 2,033 ft. This is probably the oldest and deepest Mid-Continent flood and one which has made a good return on the small amount invested in development.

In the extremely shallow area east of Rantoul, Kirby Oil Co. is producing about 300 bbl. from 22 wells where the company makes a practice of having input wells equipped so that three horizons, Bartlesville, Squirrel and Peru, may be flooded simultaneously through a single well. The deepest of these three sands is found at 570 ft. This flood is little over a year old.

The most prominent project in the active Chanute area is that of Darby Lynde Oil Co., which is producing nearly 700 bbl. from 95 wells from Bartlesville sand at 700 to 705 ft. Among other floods of importance are the MacIntyre-Travis producing 400 bbl. from the Prue sand at 637 to 695 ft., north of Moran, and Brundred Oil Corp., which has been producing close to 700 bbl. from extensive operations near Garnett.

Two of the operators which have recently introduced water flooding into areas which had been repressured by compressor methods are Oko Oil & Gas Co. and Bird, Hanley & Sheedy.

Much attention is being given to studies of economical spacing patterns, the relative advantages of flowing and pumping and those of gradual and rapid recovery. There is much difference of opinion on these points just as there is on the advisability of using brine or fresh water.

So far it appears that the most successful operators are those who have selected properties carefully and who operate on a sufficient scale to warrant the required attention.

IT'S THE OFFENSE THAT WINS BATTLES

Since 1940, the Nazis have won battle after battle. Why? Because they've waged one offensive after another.

ALTER EGO: Yes, but they've been able to do that. They started their *war production offensive* 10 years ago so they had a big edge on us in tanks, planes and guns. Then we really started competing.

So competition forces progress. *Look how in two years, our* production offensive *has already surpassed that of the Axis—turning out better weapons and more of 'em. These new arc welded M-4 tanks, for example. They'll soon be in our fighting offensive.*

ALTER EGO: It's thrilling but don't let it get us complacent. Haven't we learned never again to be caught unprepared in war . . . or in *business competition* either?

There you have it! Let's start TODAY waging a planning and designing offensive *so we'll be on the alert with better welded products and lower costs to get the upper hand on our competition the minute the post-war Battle for Business begins!*

Ask your inner self if it isn't the offense that wins battles.

THE LINCOLN ELECTRIC COMPANY
CLEVELAND, OHIO

then I said to myself—

IT'S A GREAT JOB —WELD DONE!

I'm *Glad* I'm An *Oil Man*

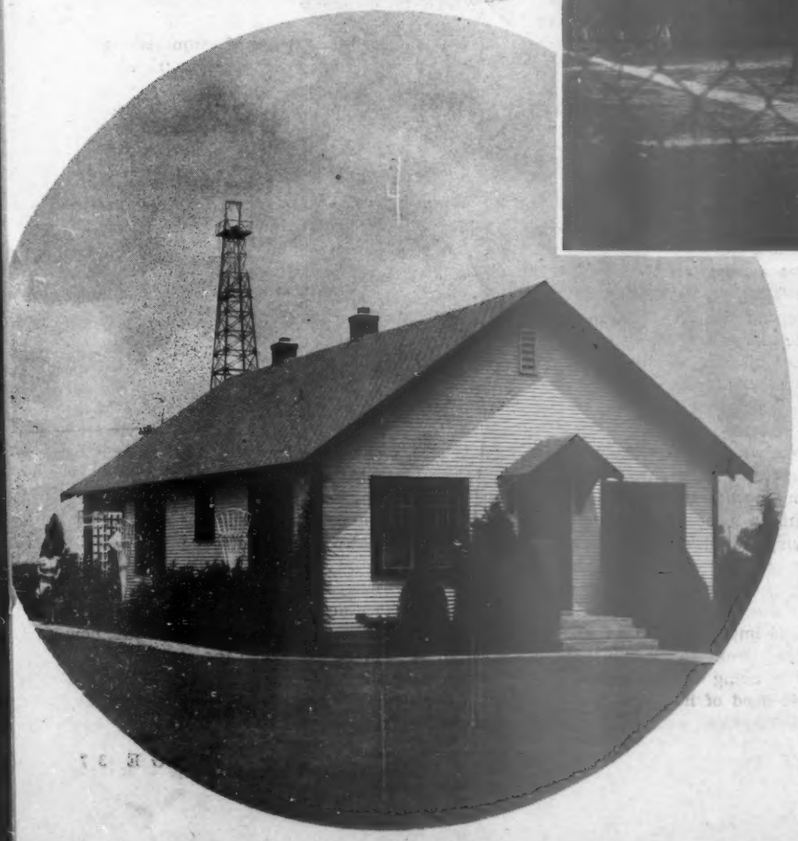
By GEORGE BIGGS
Continental Oil Co.

In this article the author, who is a former contributor to the Saturday Evening Post and other national publications, gives his observations regarding the oil industry from the standpoint of the employe

I STARTED as a farm hand. After a couple of years of that I moved to the big town (Topeka, Kans.), where I apprenticed out to learn the buggy-making trade. That was in 1904, and buggies were already feeling competition from the new horseless carriages, so the next few years found me working as a tobacco stripper in a cigar factory, as a bell boy in a hotel, as a moulder's helper in a large brass works, as a wheelbarrow chauffeur for a small contractor. That last job was a honey—75 cents a day for 12 hours' work. An accident made it impossible for me to walk without a cane for a few years, so I got a job as a bookkeeper, and my career as a pencil pusher saw me working for four firms—all the way from a small wholesale grocer up to a large corporation engaged in steel making. Later, as the bum knee got more workable, I became a traveling salesman. In that line of activity I worked for one small tire jobber and for two large companies with national distribution. In a 2-year lull I got back into the construction business as a form-setter, later becoming a foreman, still later a superintendent. In another 2½-year period. I ran a farm-implement business of my own.

What I mean to say is that I've been around some. I have lived in Kansas City, New York, Akron, Chicago, St. Louis, Omaha, and in no less than eight small towns—including St. Francis, Kans., population 1,041. Right now I'm residing—very happily, thank you—in a swell town in Oklahoma. Many fields of endeavor have found me seeking a livelihood in them; some had large, while many had very small pay rolls. I think I have seen nearly all sides of the industrial picture—from its worst aspects, and from its best. I'm an experienced hired hand. Outside of the 2½ years running my own business, I've been on someone else's employment list for almost 40 years. Some of that time my work was that of the lowest type of unskilled labor—part of it has been as a sort of an executive—maybe "straw boss" would be a better term. In my own wholly biased opinion, I feel that I ought to be accepted as an authority on what makes a good job and what makes a job not so good.

About 17 years ago I got into the oil business. The various things I've done—for two different large companies—cover a wide range. I have operated a service station, driven a tank wagon, supervised construction work, audited the books, covered a territory, acted as substitute branch manager, wheeled and loaded barrels in a warehouse. I have a job now where I'm pitching with my head instead of my arm, and I get to travel around quite a bit, talking with our younger men who drill wells, make leases, build and operate refineries, try to discover new processes in the laboratory, sell gasoline and oil, repair tank cars, run bulldozers—nearly all the thousand and one things falling within the province of the active oil man.



View of a street on oil-company camp, where neat, modern homes are provided for employes. The company provides the landscaping as well as the sidewalks and other conveniences

Left: Foreman's home near Edmond, Okla., on a lease in the middle of an oil field

The net of it all is that it would take a bulldozer, operated by a mighty skillful and resolute skinner, to push me out of the oil business and back to making buggies—or into any other of the industries in which I've worked.

The reason for that is simple—the oil business is a more interesting activity than most. It gives a man more different and exciting things to do, it offers more opportunity to get ahead, it treats its men more like human beings, it recognizes "manpower" as something higher in the list of things needed for production than is the case in other vast industries. It made me sore, some 20

View of a pump station in a country where modern conveniences are not exactly indigenous

years ago, when a prominent writer listed the needs of industry under what he called the "four M's." He meant money, machines, materials and manpower. It seems to me nearly all other industries do their thinking in terms of these four ingredients, always named in that order, which they must provide in certain coldly calculated quantities for the purpose of getting the "two P's"—production and profit. By contrast, the oil business seems to have the general and over-all attitude of thinking about men first. We are all men, says the oil industry. We men are running this business—if we can get together certain money, machines, and materials, we can increase production, make a profit, and have a whale of a good time doing it.

Why Oil Business Is Unique

That slight difference in purpose and objective leads to a great many different ways of doing things; in the end it makes the oil business almost unique. It leads, as a matter of course, toward unremitting efforts to surround the employe with safety precautions. It makes it come about that the oil business under normal conditions for many years has paid higher wages than any other industry. It causes both large and small companies to provide for its workers' modern homes, neatly built and landscaped, out in desert countries where such conveniences are not exactly indigenous. It results, unofficially but to a highly practical degree, that any young fellow with a will to work finds willing tutors to teach him the ins and outs of any job for which he shows adaptability. It prompts the kind of thinking which results in annuity plans, health and accident benefits, credit unions, joint savings committees, athletic associations, cultural activities of a wide range and variety.

In my particular town, one of the last-named which has proved to be extremely popular is a weekly square dance. In order to preserve the aura or attitude of developing the cultural life of the ordinary employe, the big oil company men who have to put up the money for this hilarous enterprise declare they are "reviving the folk dances of an earlier period. . . ." The truth of the matter is, of course, that folks up in our neck of the woods are old-fashioned and like square dancing. So the big shots scratch the place where their sense of fitness is itching and utter some platitudes about industrial relationships, enlightened self-interest and the like—then they shuck loose quite an impressive number of dollars to sponsor the activity. For that matter, they more than frequently happen down on Thursday nights and do a little square dancing themselves. All you hear in this thunderous multitude is Bill and Lizzie, Jack and Jill. It's a place where first names and lasting friendships find their beginnings.

What I'm driving at is that many things done for the benefit of the ordinary oil-company employe are neither expressions of some complicated new ideology or social welfare theory, nor are they semiunwilling gestures meant to compensate the hired hand for a skimpy wage scale. There is no high-brow condescension about it. The unusually high living standards and the wide variety of extra curricular enjoyments which are the inherent privilege of oil men—to the frankly expressed envy of workers in other lines, we must admit—are just simply an industry-wide recognition that all the men in our business are important and are entitled to a good brimming share out of the industry's gross return. We all helped to make it, so we all are expected to enjoy it.

By some sort of skillful manipulation, not at all understood by many business men in other lines, the oil industry seems to engage in this kind of free-handed treatment of its rank-and-file workers without penalizing the stockholder. Just how it is done is a mystery, even to many oil men like myself. All I know about bookkeeping sums up to the fact that if you spend some money over here, you don't have it to spend somewhere else.

Maybe we can find a reason for all this in the history of the oil business and in the kind of men who run it. The oil industry was founded by energetic outdoor men, chance takers, hearty individuals who worked hard and played hard. The suave and smoothly diplomatic type of the *genus homo* who has come into influence in many other lines of business was a rarity in the early days of drilling wells, building refineries and driving mule-power tank wagons. He did not have what it took to meet the hardships of weather and wilderness out where oil was produced—he did not have the kind of fist-fighting sales ability needed to translate the output of a "Black Golconda" into signed orders.

Men of action, men with hair on their chests, founded the oil business. They transmitted to us a great and inspiring tradition. It is a thing of priceless value, far more to be desired than high wages, pleasant living conditions, security for the future, or other material comforts which oil men have and other men may not have. The tradition of which we are the proud inheritors is simply that nothing is impossible.

Today, on the flaming decks of stricken tankers, that bold tradition is being carried out to the last full measure. No deed of heroism in all the annals of time can compare with that of the lowly wiper or the burly deckhand who signs on to take a cargo of highly inflammable gasoline through subinfested seas. Theirs is a calm and calculated disregard of discomfort and death in its most dreadful form. Whatever medals may be pinned ultimately on less worthy breasts, whatever salutes may be fired over better tended graves, it will be written in the heroic saga of petroleum that these men went down to the nameless deep as oil men should—in a good cause and unafraid.

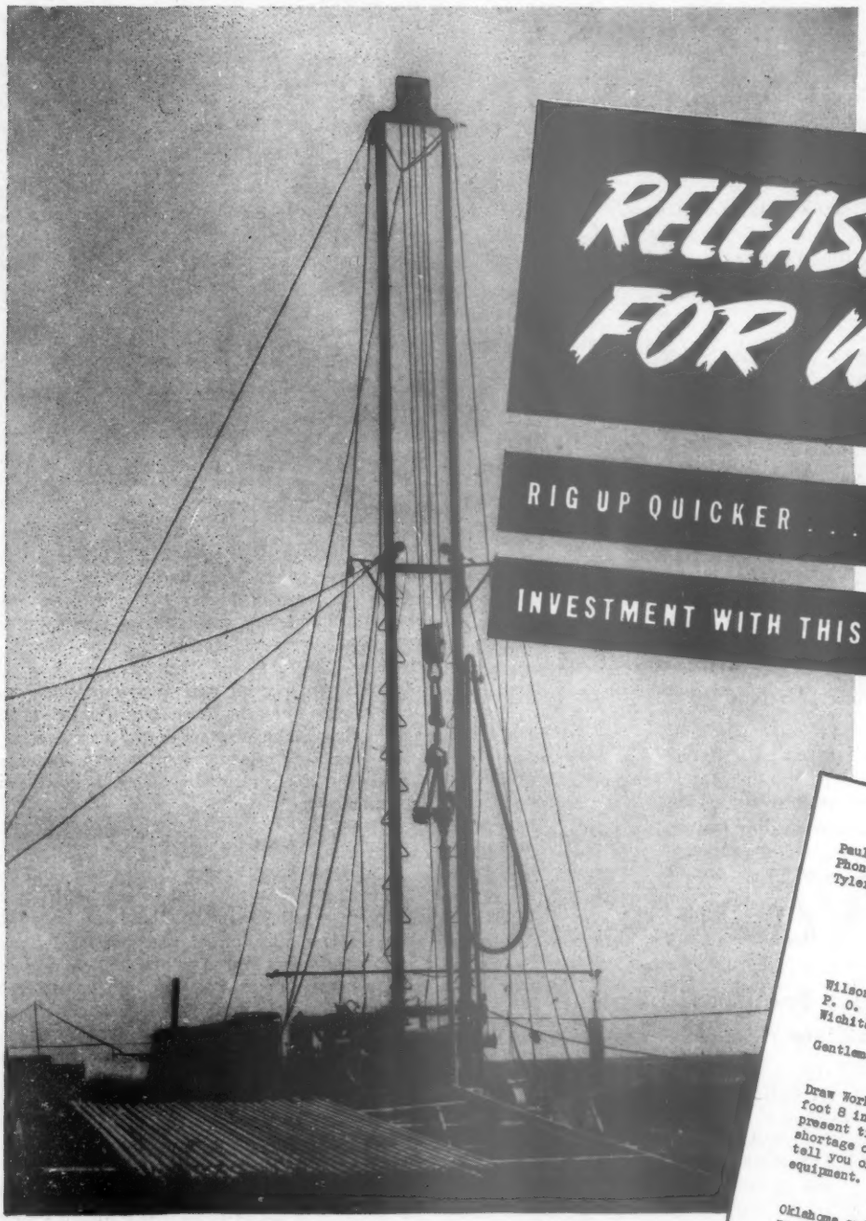
Serving Vital Need

On other fronts, through all the world, oil men are serving well in the great enterprise. No worker enters a refinery gate without the knowledge that his is a vocation of real and deadly peril. No one is sure on what day and hour some secret saboteur may worm his way into an American refinery. Certainly these vast repositories of gasoline are marked on the dictators' lists for destruction if they can be reached—those near the sea coast may be reached any day. The men who work in refineries are doing things highly needful in the production of one of our most vital war supplies, and they are doing it at the risk of their lives, literally.

Physical danger may become a diminishing factor as we look at other activities in the oil business, but it remains true that any man having to do with the production, refining, transportation, or marketing of oil products in these days is helping to win the war. No other one material comes so close to being a vital supply for so many processes—both in the conduct of war and in industrial production which must support war workers and our communities generally. Lubricants and high-octane gasoline, to mention just two, are oil products without which the vast combat and industrial machines could not last a day—their lack would lose the war in a week.

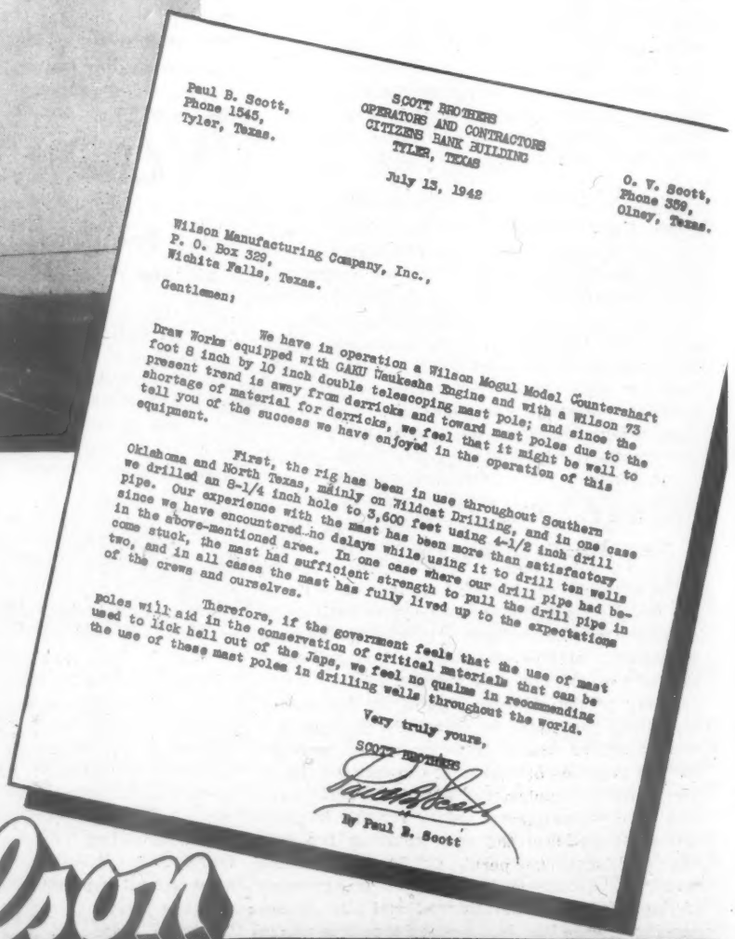
Oil men can justly take pride in the contribution this unusual industry is making and will make toward final victory. A part of that pride is soundly based on the need for our kind of goods and services. A greater part, though, is based on a consideration of the kind of men making up the oil business. Oil men can do anything. They can do it shorthanded and under handicaps. That boastful statement has been proved up to the hilt again and again. To a greater extent now than any other class of workers in the country, men in this business again have their limitless opportunity to show an astonished world just how good an oil man can get when the going is tough.

That, after all—the kind of men I work for and am associated with—is the big reason why I'm glad to be an oil man.



RELEASE DERRICKS FOR WAR USE!

RIG UP QUICKER . . . CHEAPER . . . WITH LESS INVESTMENT WITH THIS 73 FT. TELESCOPING MAST



SCOTT BROTHERS
OPERATORS AND CONTRACTORS
CITIZENS BANK BUILDING
TYLER, TEXAS

July 13, 1942

Paul B. Scott,
Phone 1545,
Tyler, Texas.

O. W. Scott,
Phone 359,
Olney, Texas.

Wilson Manufacturing Company, Inc.,
P. O. Box 329,
Wichita Falls, Texas.

Gentlemen;

We have in operation a Wilson Mogul Model Countershaft Draw Works equipped with GAKU Waukesha Engine and with a Wilson 73 foot 8 inch by 10 inch double telescoping mast pole; and since the present trend is away from derricks and toward mast poles due to the shortage of material for derricks, we feel that it might be well to tell you of the success we have enjoyed in the operation of this equipment.

First, the rig has been in use throughout Southern Oklahoma and North Texas, mainly on Wildcat Drilling, and in one case we drilled an 8-1/4 inch hole to 3,600 feet using 4-1/2 inch drill pipe. Our experience with the mast has been more than satisfactory since we have encountered no delays while using it to drill ten wells in the above-mentioned area. In one case where our drill pipe had become stuck, the mast had sufficient strength to pull the drill pipe in two, and in all cases the mast has fully lived up to the expectations of the crews and ourselves.

Therefore, if the government feels that the use of mast poles will aid in the conservation of critical materials that can be used to lick hell out of the Japs, we feel no qualms in recommending the use of these mast poles in drilling wells throughout the world.

Very truly yours,

SCOTT BROTHERS

By Paul B. Scott

THE tremendous savings in critical materials . . . in man hours . . . in money . . . through the use of the Wilson Portable Telescoping Mast is a matter of vital importance at this time! This mast can be used for drilling and servicing hundreds of wells; entirely eliminating the need for an initial or stationary derrick. Requires only one-fourth of the material used in average drilling derrick. Raised easily and quickly and extended to full height with hoist drum *in two to four minutes.* Since blocks and lines are already strung up on mast, only other work necessary to put mast in operation is to attach guy wires to stakes. When furnished with racking platform, designed to handle 4,000 ft. of 4½″ drill pipe in doubles of 30′ pipe, this 73′, 8x10″ Wilson Telescoping Mast becomes the ideal drilling and servicing mast for wells up to 4,000 feet!

Wilson

MANUFACTURING COMPANY, INC. WICHITA FALLS • TEXAS

EXPORT REPRESENTATIVE • GUY E. DANIELS • 30 ROCKEFELLER PLAZA • NEW YORK CITY
PACIFIC COAST DISTRIBUTOR • H. & B. SALES CO., LTD. • LONG BEACH • CALIFORNIA

Natural Gas News

Furnace-Type Carbon Black Put Under Priority Control

WASHINGTON, D. C.—A complete allocation system for furnace-type carbon black, effective November 1, has been established by the director general for operations in General Preference Order M-244.

This material is the most important pigment used in compounding synthetic rubber. Facilities for production of carbon black from natural gas are less than the amount needed for current and prospective needs.

Persons seeking authorization to accept delivery are required to file Form PD-600, while those seeking authorization to make delivery are required to file Form PD-601.

Purchase, delivery and use of 100 lb. or less of furnace-type carbon black to any one person in any 1 month are exempted from the restrictions of the order.

Border Pipe Line Co. Authorized To Export Texas Gas to Mexico

WASHINGTON, D. C.—The Border Pipe Line Co. of Houston, Tex., and the American Smelting & Refining Co. of New York City last week were authorized to export natural gas produced in the San Salvador field in Hidalgo County, Texas, for use by the American company in its zinc smelter at Rosita, State of Coahuila, Mexico. Applications for the authorization were filed with the Federal Power Commission by the Border company on February 2, 1942, and by the American company on September 14, 1942, under Section 3 of the Natural Gas Act.

According to the Border company's application, the American company's requirements for zinc production are estimated to be 10,000,000 cu. ft. of gas per day, which would be sold, under a contract between the two parties, at the rate of 5 cents per 1,000 cu. ft. for gas having a heating value of 1,000 B.t.u. per cu. ft.

Cities Service Rate Hearing Set Next Month at Kansas City

WASHINGTON, D. C.—Culminating an extensive 3-year investigation of the Cities Service Gas Co.'s system and operations, the Federal Power Commission last week announced that it had ordered a public hearing to be held to determine the reasonableness of the company's wholesale gas rates. The hearing will open November 30 at Kansas City, Mo.

During the course of the investigation instituted in October 1939, a large number of accountants and engineers have been continuously employed in obtaining the information and data upon which the commission predicated its action. In setting the matter down for hearing, the commission stated that the "investigation has disclosed conditions, facts and circumstances which warrant a public hearing."

If the present rates of the Cities Service Gas Co. are found to be unjust and unreasonable, the commission will fix just and reasonable rates to be observed hereafter by the company, the order states.

Cities Service, one of the major operating gas companies in the United States, with offices at Bartlesville, Okla., is authorized to do business in Texas, Oklahoma, Nebraska, Missouri and Kansas. The transmission system of the company consists of more than 4,307 miles of main pipe lines.

Cabot Carbon Authorized To Build Furnace-Black Plant

OKLAHOMA CITY, Okla.—Construction of a furnace-type carbon-black plant 2½ miles east of Guymon in the Oklahoma Panhandle and in the Hugoton gas field has been authorized by the Corporation Commission.

Cabot Carbon Co., represented by E. L. Green, Jr., Pampa, Tex., the applicant, was authorized to use up to 10,000,000 cu. ft. of gas daily in its carbon-black operation.

Memphis Natural Gas Co. Rate Hearing Reset for October 26

The Federal Power Commission hearing at Little Rock, Ark., concerning wholesale natural-gas rates charged by Memphis Natural Gas Co. for deliveries to Arkansas Power & Light Co., has been rescheduled for October 26. The original hearing date was October 12.

According to the complaint, which was filed April 25, 1942, the Memphis company "is now, and has been for a number of years, engaged as a public utility in owning and operating a natural-gas pipe line extending from the Richland-Monroe fields in Louisiana, through Louisiana, Arkansas, Mississippi, and to Jackson, via Memphis, Tenn." The complaint stated that the average rate for gas purchased for resale by the Arkansas Power & Light Co. during 1940 was approximately 29.5 cents per 1,000 cu. ft., while gas transported a much greater distance was sold by the Memphis company to the municipal distribution system at Memphis at an average rate of less than 15 cents per 1,000 cu. ft.

Order Requiring Addition Of Odorant to Gas Voided

AUSTIN, Tex.—An order of the Texas Railroad Commission requiring addition of an odorant in natural gas sold by utility companies last week was ruled invalid by the State Supreme Court. The court held that the order was uncertain and too general.

The Railroad Commission regulation requiring injection of an odorant in natural gas consumed in domestic facilities was issued after the New London school disaster several years ago and was designed to make certain the detection of escaping gas.

Natural Gasoline

Shell's Texas Gulf Plants Complete Accident-Free Year

HOUSTON, Tex.—The four natural-gasoline plants operated by Shell Oil Co., Inc., in its Texas-Gulf area completed 1 year of continuous operation, ending August 1, without a disabling injury. This achievement is noteworthy in view of the extensive construction programs during this period at Magnolia, Ark., and Wasson, Tex., and the extensive repairs at the Hobbs, N. M., plant.

The Iowa, La., plant, J. L. May, superintendent, has a record of 8 consecutive years of continuous operation without a disabling injury.

The Magnolia plant, C. E. Haines, superintendent, has suffered only two disabling injuries, both of a minor nature, during its 2½ years of operation up to August 1, 1942.

The Wasson plant, S. W. Craig, superintendent, has suffered only one disabling injury from beginning of operations in November 1939 to August 1, 1942.

The Hobbs plant, where T. W. Brown is chief engineer, was taken over by Shell on August 1, 1941, and has suffered no disabling injuries for the year ending August 1, 1942.

Natural-Gasoline Production Continues Upward Climb

WASHINGTON, D. C.—Production of natural gasoline and related products averaged 227,000 bbl. daily in August, an increase of 8,000 bbl. over the July manufacturing rate and continued an upward trend that has been in evidence most of this year. Meanwhile, stocks at plants and terminals and at refineries declined to a total of 6,405,000 bbl. at the end of August, the Bureau of Mines reported this week, a reduction of 183,000 bbl. from the July 31 inventory.

East Texas, Louisiana, and New Mexico districts all reached new production peaks in August operations, the bureau reported and were chiefly responsible for the higher national output which totaled 7,028,000 bbl. in the month.

PRODUCTION BY STATES

(Data in thousands of gallons)

	Aug. 1942	July 1942	Jan.-Aug. 1942	Jan.-Aug. 1941
W. New York	1	1	9	9
W. Pennsylvania	831	744	10,084	9,607
West Virginia	7,135	6,663	63,714	43,889
Ohio	298	300	4,384	5,011
Illinois	11,420	11,561	88,627	32,588
Kentucky	2,719	2,522	16,283	5,934
Michigan	245	256	1,759	2,571
Kansas	5,856	5,598	50,640	46,803
Oklahoma	37,828	36,879	293,275	249,056
Texas	133,254	128,615	1,045,718	744,668
Gulf	31,373	29,298	246,805	180,566
East Texas	29,959	23,771	190,167	116,001
Panhandle	32,553	35,312	277,655	188,315
Other	39,369	40,234	331,091	259,786
Arkansas	3,697	3,712	27,043	22,969
Louisiana	25,670	24,683	193,040	87,997
Gulf	6,072	5,923	44,132	(*)
Inland	19,598	18,760	148,908	(*)
New Mexico	7,986	7,558	56,995	40,824
Colorado	19	68	181	194
Montana	275	261	2,895	1,693
Wyoming	3,057	2,916	23,413	23,466
California	54,885	53,431	416,862	384,225
Total	295,176	285,768	2,294,922	1,701,504
Dly. avg.	9,522	9,218	9,444	7,002
Total (thousands of bbl.)	7,028	6,804	54,641	40,512
Dly. avg.	227	219	225	167

*Not available.

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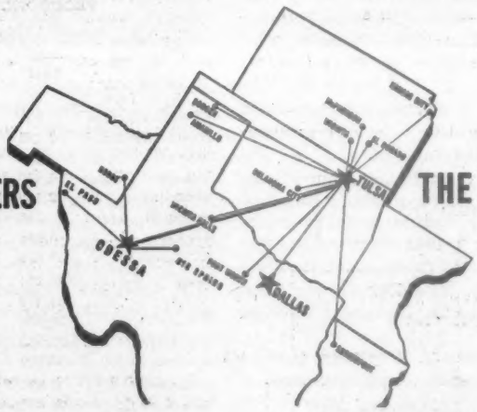

THE MID-CONTINENT

FISHER
Automatic Controllers

NATIONAL
Pipe and Steel Tubes

TUBE-TURNS
Tees, Reducers, Flanges and Welding Caps

CHASE
"Antimonial Admiralty" Condenser Tubes

Standard Brass Products

VINSON SUPPLY COMPANY TULSA • DALLAS and ODESSA, Texas

ENGINEERING *and Operating* SECTION

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How the World's Safety Record For Refineries Was Made

This account of a successful safety program details the organization and methods used at the Standard Oil Co. (Indiana) refinery at Wood River, Ill., where an all-time record of 6,879,296 hours worked without a disabling accident was set earlier this year.

By L. D. PALMER*

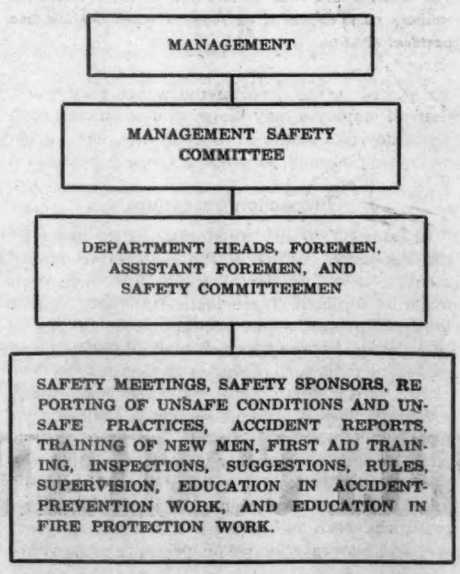
ON June 30 a workman of the Wood River refinery of the Standard Oil Co. (Indiana) was walking down a tank stairway after having taken a monthly tank inventory, just as he had done often before in his many years of service with the company. This time his foot slipped and he fell and suffered a disabling injury which kept him off the job for 5 days. Thus ended a period during which 6,879,296 hours had been worked without a disabling accident.

The average reader will be more interested in what was done to stop accidents during this period than in this particular case. As may be surmised this extended safety drive involved came after some serious accidents had occurred. The refinery had previously worked more than 9 months without a lost-time case and then had six lost-time accidents in 3 months. That started it.

This article is prepared at the request of the Editor of The Oil and Gas Journal in the hope of offering something of value to others in the drive for safety as a part of the war effort. Generalities will be avoided as much as possible in favor of facts as to the methods used. Here then is how a safety record is made.

Organization of Program

The management appoints a management safety committee which includes the general superintendent, assistant general superintendent, master mechanic, and the supervisor of safety. This committee, by means of reports and by holding regular meetings, keeps in touch with accident trends and accident problems, formulates rules, plans subject matter desirable for use in monthly safety meetings of various groups, and makes decisions and recommendations on the suggestions referred to it and on matters of policy. The following is an organization chart:


MANAGEMENT
MANAGEMENT SAFETY COMMITTEE
DEPARTMENT HEADS, FOREMEN, ASSISTANT FOREMEN, AND SAFETY COMMITTEEMEN
SAFETY MEETINGS, SAFETY SPONSORS, REPORTING OF UNSAFE CONDITIONS AND UNSAFE PRACTICES, ACCIDENT REPORTS, TRAINING OF NEW MEN, FIRST AID TRAINING, INSPECTIONS, SUGGESTIONS, RULES, SUPERVISION, EDUCATION IN ACCIDENT-PREVENTION WORK, AND EDUCATION IN FIRE PROTECTION WORK.

The rank and file of employes as well as foremen have a part in the safety organization. If good safety work is to be done, both the employe and foremen must have a truly responsible and active part in it.

Functions of Foremen

Foremen receive reports of all accidents occurring in their departments. They investigate the accidents, make their own reports, and in these reports designate the prime factors involved. All foremen attend group safety meetings, serve on committees making inspections and job studies and discuss assigned subjects in these meetings. They appoint their departmental sponsors for safety, formulate departmental regulations, inform employes concerning general refinery regulations and policies, act as an essential part of the planning department to see that planning is coordinated to prevent accidents, make all equipment inspections except those made by the engineering department (and these are many and important), train new employes, operate their own departmental suggestion system, and carry on the essential duty of safety supervision.

Employe Participation

Employes serve as safety committeemen, make many suggestions concerning the safety of their work, and to improve refinery safety generally. They take turns when appointed by their foremen acting as safety sponsors in all groups of the mechanical and process departments. All employes receive a monthly letter on safety from the management and are kept as well informed as possible on accident-prevention work by having posted reports on accidents, including near serious and off-duty accidents. They participate in safety meetings in all departments where such meetings can be held. In the belief that the success of a safety program depends largely on the individual interest of all employes, much of the safety work is directed to this end.

*Supervisor of safety, Wood River, Ill., refinery, Standard Oil Co. (Indiana).

A program of reporting near serious accidents has proved helpful. These are accidents in which no one is hurt, or no one is hurt seriously due to good luck, but accidents in which some employe might have been seriously injured. During the past 4 years 185 such cases have been reported. The causes have been analyzed and the necessary action taken to prevent similar occurrences.

Reports are made of all personal injury cases. The medical department sends a notice of the injury to the foreman, and the foreman involved makes out an accident report which is sent to the department head and forwarded to the supervisor of safety. Each report gives a description of the accident, indicates the factors involved and, when practical, states action taken or contains suggestions as to action desired to prevent such accidents.

The supervisor of safety prepares monthly frequency reports, severity reports, off-duty accident reports, near serious accident reports, and a foreman's accident report. All of these are reviewed by the management safety committee and at all safety meetings. The lessons they teach are applied to further efforts to prevent accidents.

Publicity and Educational Material

All foremen receive the American Petroleum Institute "Accident Prevention Information" pamphlet. Safety posters purchased from the National Safety Council are posted on 11 bulletin boards in the refinery and these posters are also posted on refinery trucks which carry bulletin boards on them. There are safety boards at the two main gates of the refinery over which National Safety Council flags fly. These boards show the best current refinery safety record, the number of lost-time accidents for the year, the number of hours worked since the last lost-time accident, and the number of days worked since the last lost-time accident. Daily and weekly "Safety Reminders" are provided to be posted on bulletin boards of the various departments or to be read to men. Employe questionnaires are sometimes used covering various subjects, including fire protection, and occasionally homemade bulletins are prepared on subjects of current interest. Sound slide films secured from the National Safety Council and other sources are shown to various groups in the refinery. General publicity is not used to any great extent to aid in accident-prevention work.

It has rarely been necessary to resort to discipline to enforce safety regulations. There have been a few problem cases, regarding which men have been talked to by the management safety committee or by members of the committee with their foremen present. It has been found that cases where this approach is not effective are most exceptional.

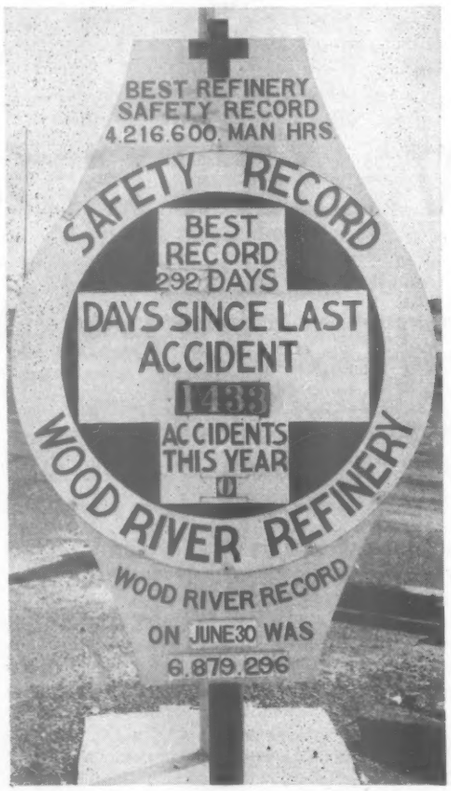
Management Safety Letter

A mimeographed safety letter from the manager is placed in the plant mail each month for monthly paid employes and is placed with clock cards for hourly paid employes. This letter, is for the most part, intended to be instructive. It sometimes contains praise for good safety work done and occasionally points out problems faced in safety work.

A sponsor has no additional specific duties or responsibilities other than those included in his regular work, but he is expected to take particular interest in safe working conditions and practices on the job, and to caution each employe regarding any hazard observed. He is not required to make any formal reports regarding his activities, but is requested to advise his foreman immediately of defective or unsafe mechanical equipment or of any physical condition that he thinks creates a hazard.

Some of the important actions taken by sponsors in the past are as follows: (1) warning employes to get out of barricaded areas; (2) calling attention to goggle requirements when breaking concrete, or performing other eye hazardous work; (3) calling attention to requirement of safety hats against falling material hazards; (4) cautioning employes to stay out from under crane booms when operating; (5) checking protective equipment on hand and in use when working around acid lines, pumps, and tanks; (6) watching crane operations near high-voltage electrical lines; and (7) assuring presence of proper signs at loading zones, working areas, blocked railways or vehicle roads, and closed pedestrian walkways. These examples clarify duties that may be, and are, assumed by sponsors.

One or more employes may be selected for each group or process unit each month. Their names



The safety board near a main gate of the Wood River refinery as it appeared on June 30 when the lost-time accident occurred

are posted in the departments where they work, that all employes may know who is serving each work day. As additional recognition, each sponsor, when selected, is given a sponsor button.

Inspection Procedure

In addition to the usual inspections made by the inspection division of the engineering department, a large number of inspections have been made by foremen. These include monthly goggle, tool, and protection-hat inspections. Other inspections made by the foremen and designated employes include such items as ladders, ladder stations, safety belts, rope, cable, hoists, stages, grinding wheels, remote controls, trucks, gas masks and blowers, life vests, etc. There are 49 such designated monthly inspections, 3 inspections required weekly, 6 required semiannually, and 14 annual inspections. This inspection program has been in operation a number of years and has proved effective in preventing many accidents of the type which previously resulted from defective equipment or from equipment not being in good working order.

Safety Meetings

Two group safety meetings are held each month, attended by members of the management, all department heads, foremen, assistant foremen, and safety representatives. The first meeting is attended by department heads and foremen with members of the management; and the second meeting is attended by foremen, assistant foremen, safety committeemen, and members of the management. The committeemen are chose quarterly. Members of the groups are assigned duties of making job studies and plant inspections. Reports of the studies and inspections are presented in the meetings of the groups. A "Subject of the Month" selected by the management safety committee is discussed in both meetings. Since the subjects recently used may be of interest to others, the following list is presented:

"Information Please" about regulations and practices.

"True or False" statements about accident prevention.

"Why Quiz" on reasons for selected regulations.

Horse play.

Lighting gas and oil fires.

"Lest We Forget" review of former accidents.

Activities of foremen in departmental safety work.

Sponsorship plan, how it is working and how to improve it.

Review of the A.P.I. review, "Annual Report on Fatalities in the Petroleum Industry." (This report always used as a subject of the month when it was issued. It is always most interesting and helpful.)

Good housekeeping.

Review of regulations. (Used as a refresher and to give the members of groups an opportunity to point out improvements desired.)

Training of new employes.

How can we further reach employes on safety?

Safe handling of light-oil products.

Fire protection and drills.

How do you (foremen) put new regulations into effect when you receive them?

Are we ready for winter? Departmental problems presented.

First aid and first-aid demonstrations by medical department.

Falls and means being used to prevent them.

Inspections of tools and equipment.

Personal protective equipment and demonstration of use.

What are the hazards of falling material in your department?

Why do we have most of our near serious accidents caused by unsafe working methods?

Hand tools.

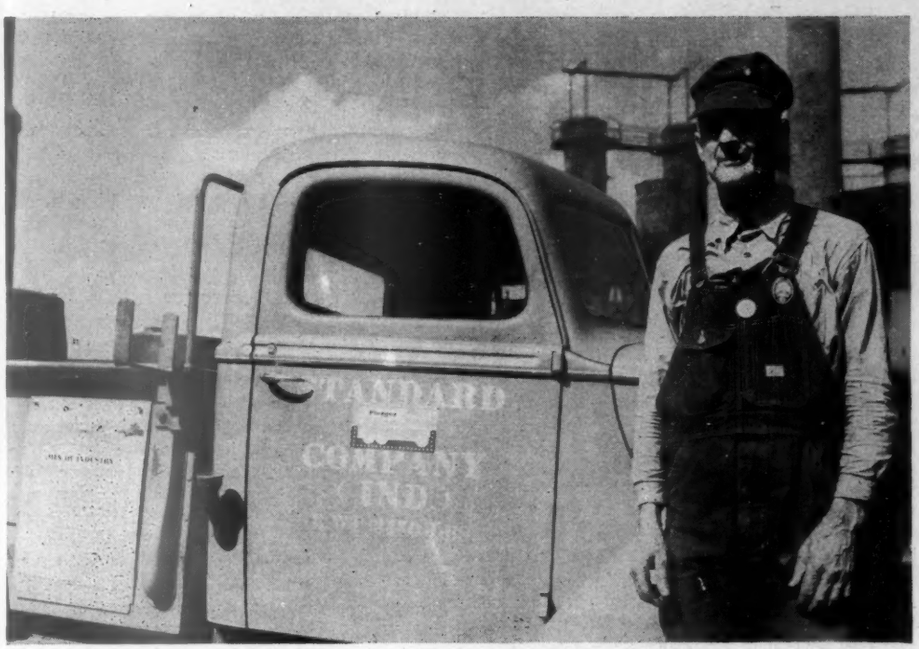
Job planning.

What are the inherent hazards in your department?

Report of safety violations. All observed to be reported even if names of men and departments occasionally not reported.

Suggestions for safety. All members of the group asked to bring in some suggestion to be discussed.

"Subjects of the Month" are used in the departmental safety meetings conducted by foremen to the extent practical. In some cases the subject matter discussed would be of little value in some departments. Follow up in the departmental meetings is desired to see that information developed in the group meetings is made available to all employes concerned. In a few process departments, due to special circumstances, meetings are not held and foremen contact men in-



George Bantz and his pickup truck, showing how safety posters are displayed on the sides of vehicles. The railing just back of the cab is a handhold for any helper who may be required to ride on the truck bed

dividually and issue bulletins covering essential information.

Experience has been that it takes no more time for individual workmen to receive necessary safety information and instructions in these meetings than out of meetings. It takes less of the foreman's time and apparently more is accomplished. Therefore, if meetings are well planned they do not add to the cost of an effective program. Considerable ability is required in the conduct of such meetings, and the average foreman soon acquires this ability if he does not possess it at the start.

Safety Regulations

There is a refinery regulations book which contains 150 pages of various regulations and requirements for refinery safety. Some of the subjects covered are: First aid, cleaning and repairing tanks, repair work, eye protection, excavations, clothing, horse play, ladders, scaffolds, lighting fires, housekeeping, fire protection, hand tools, slings, traffic, high-pressure air, handling acid, handling caustic, handling ammonia, electrical equipment, reporting accidents, etc.

The complete book of refinery regulations is too large for practical use in departments. Therefore, departments have taken from the general book those regulations which concern their departments and have added those particular rules and safe practices required in their work and these are called departmental regulations. Copies of such regulations are made available to the employes of the department. In some departments these regulations are sent around to men who read and sign regulation books at intervals and in some of the departments the regulations are reviewed in safety meetings. We have found that review of regulations is as essential as issuing them. Also, we have found as most plants have that regulations are essential but having a book full of regulations will not prevent accidents.

Studies made by foremen, in some cases assisted by the management safety committee, led to the adoption of forms covering procedure to be followed where several departments are concerned. Making process equipment ready for mechanical department work, repairing and cleaning tanks, gas testing, etc., are covered by forms on which items to be done are listed with spaces for names of men doing the work. In practice the value of such forms insures the following of desired procedure and the elimination of slip-ups in overlooking essential items.

General Conclusions

The safety program includes some Wood River ideas and many borrowed from other refineries and from the general office.

"You can't have a good safety program without cooperation," is a phrase heard at least 25 years ago. It is still true. It is just as true when applied to employes as when applied to management. Interest in safety work is as variable as the winds. It just doesn't stay put. It requires constant shifting of sails to keep it headed in the right direction. This appears to apply to everything concerned with safety including the regulations. And, the work of the "deck hand" is just as meritorious as the work of the "master."

The first essential of a successful safety program is the belief of management that *"safety first"* means just that.

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Pocket-Hole Drilled in Deep Well For Removal of Small Junk Pieces

A SIMPLE, yet effective method of removing several small pieces of junk, that had broken off in the bottom of an 8,500-ft. hole was resorted to by a Gulf Coast drilling contractor.

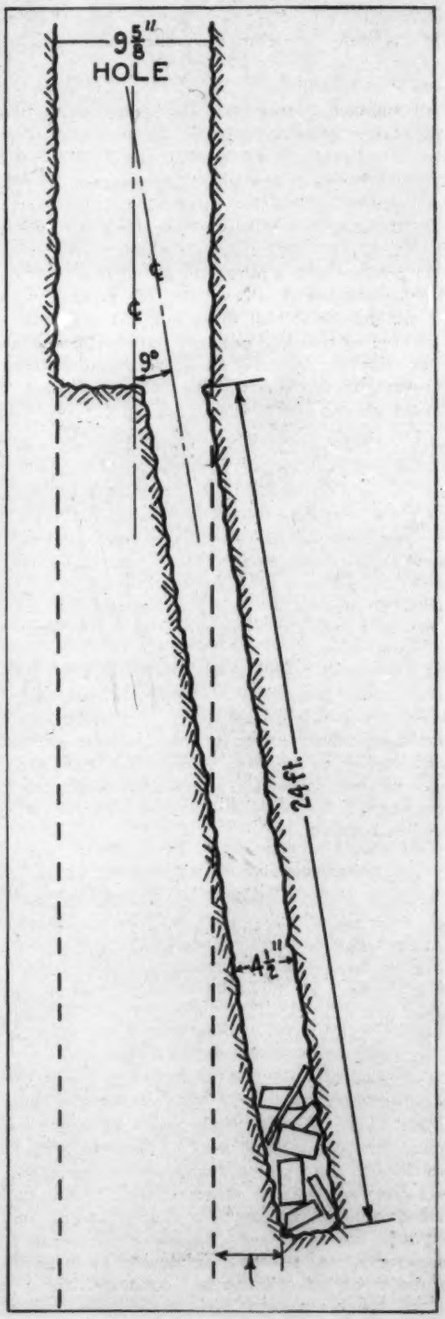
The hole being drilled was 9⅝-in. in diameter, and the pieces of junk were not more than 4 in. in diameter each. Three trips were made with a basket to recover the junk and in each instance failure resulted. Due to the comparatively hard formation at the bottom of the hole it was not possible to push the pieces into the walls of the hole as has been done in some cases. Even if this had been possible there always would have been the hazard of the junk dropping back into the hole and causing a later fishing job and possible loss of hole. As the hole had been projected to 12,000 ft., the contractor did not want to assume this hazard.

With the failure to recover the junk with the basket, the contractor then was faced with the alternative of plugging back the hole and sidetracking it with a new hole. Rather than attempt this, a costly and sometimes treacherous operation, the contractor got the novel idea of drilling a pocket for the junk.

Going to the bottom of the hole with a 4½-in. bit on a deflecting tool, a small deflected hole was drilled off one side of the 9⅝-in. hole. With the small bit, it was easily possible to do this. The small hole was deflected at an angle of 9° and carried to a depth of 24 ft. below the bottom of the main hole. This placed the bottom of the deflected hole between 3 and 4 ft. away from the course of the 9⅝-in. hole.

After coming out with the deflecting tools and 4½-in. bit, a 9⅝-in. flat-bottom fishtail bit was run in. Rotating this slowly at bottom, the pieces of junk were pushed one by one into the 4½-in. deflected hole, well out of the way of the 9⅝-in. hole. Drilling in the latter hole then was resumed without having to come out of the hole.

The entire procedure required less than 8 hours, and the cost less than a sidetracking job.



ABSTRACTS

of papers presented before a meeting of the Petroleum Division, American Institute of Mining and Metallurgical Engineers, Los Angeles, Calif., October 15-16, 1942

THE PROBLEM OF INCREASING RECOVERY. Everett G. Trostel, Conservation Engineer, Office of Petroleum Coordinator, Los Angeles, Calif.

FOR many years the problem of increasing ultimate recovery of oil from a reservoir has been receiving widespread attention by the entire oil industry. If California production practice could be improved to effect but a 1 per cent increase in recovery, 30,000,000 bbl. additional oil would reach the surface and a 10 per cent increase would result in adding 300,000,000 bbl., a figure comparable with the reserves of the largest fields in the state. From an economic standpoint, the picture is attractive, particularly since the wells are already drilled.

In discussing the mechanics which could lead to higher ultimate recovery, it is proposed to center the treatment around those procedural principles which are generally accepted by the petroleum engineering profession. These are: (1) Maintain reservoir pressure above the bubble point, or at least at its practicable maximum; (2) produce with a minimum gas-oil ratio; (3) favor production at a low rate; (4) produce with a minimum water-oil ratio, and (5) maintain a uniform or balanced pressure pattern throughout the reservoir in order to avoid pressure sinks, prevent uneven edge-water encroachment and to avoid gas-cap contraction.

The simplest and cheapest method, when feasible or possible, of maintaining pressure in a reservoir, is to produce at such a rate and with such distribution that the edge water encroaches evenly and completely replaces the fluid volumes withdrawn.

A new reservoir should be produced at the lowest rate commensurate with the minimum necessary rate of financial return, except where positive military demand exceeds it, and for a sufficient period of time that the pressure behavior of the reservoir clearly indicates whether or not it is feasible, or even possible, to produce under a full edge-water drive.

It is generally agreed that a reservoir produced by gas expansion will release the great majority of its gas, which will be recovered regardless of the specific production procedures followed. The volume of recoverable gas tends to be constant. It immediately follows that the lesser the ultimate accumulated gas-oil ratio the greater will be the oil recovery, and, as a corollary, any production practice which will result in oil production at a lower gas-oil ratio will tend to increase the ultimate recovery of oil.

Closely allied to the maintenance of a low gas-oil ratio is that of maintaining a low water-oil ratio. Any water which enters a reservoir is contributing productive energy even though the rate of water entry is not sufficient to maintain pressure. Production of this water through the well bore is a definite waste of energy and should be avoided by early application of whatever cementing technique is indicated, provided that it is physically possible to separate the oil and water production.

During the past year tremendous strides have been made in California toward the goal of achieving a maximum-practicable-ultimate recovery. Under the direction of Recommendation 19, maximum efficient rates have been determined for all fields. For each critical field, the maximum efficient rate has been determined by a group of competent engineers from the ranks of the industry who have collected data and made detailed engineering studies. Independent action on the part of individual operators has resulted in many cases of improved production practice. In one instance four operators banded together to buy a gas-cap well, shut in gas-cap production and take advantage of pressure maintenance by natural-water drive. At this time, two pressure-maintenance projects are going into operation to provide complete return of produced gas, thus marking a milestone in California production practice. Several other projects are now operating to provide partial return of produced gas, and one in particular has shown remarkable results in allaying pressure decline and in improving recovery efficiency. The Paloma distillate field is being produced with nearly complete gas return from a pilot-plant installation, although construction of a full-scale plant has been delayed due to material scarcity.

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SPECULATIONS ON THE PREDICTION OF RESERVOIR BEHAVIOR FROM LABORATORY DATA. E. C. Babson, Production Engineer, Union Oil Co. of California, Santa Fe Springs, Calif.

IN order to explore the possibility of predicting reservoir performance from laboratory data, behavior of a hypothetical low-permeability reservoir has been estimated by applying data and methods currently available in the literature. A method of calculating productivity index decline is discussed, and recoveries by internal gas drive, external gas drive and water drive are estimated. The soundest basis for evaluating reservoir performance is past experience with oil fields, but pertinent data are difficult to obtain or apply under conditions normally encountered in California fields.

Calculations outlined in this paper were dependent upon a detailed knowledge of the properties of oil, gas and water present in the reservoir and the portion of the total pore space originally filled by each. It was also necesary to know how the permeability of the sand to oil, gas, and water varies with the saturations of these fluids in the sand. Furthermore, it has been necessary to make certain simplifying assumptions in order to perform the calculations within a reasonable period of time. The hypothetical reservoir used in the calculations in this paper was assumed to have a porosity of 21 per cent of which 25 per cent was originally filled with water and 75 per cent with oil containing 700 cu. ft. of dissolved gas per barrel of tank oil. Phase data indicate the bubble point of the original reservoir contents was 3,000 lb. per sq. in. abs. and that the initial formation volume factor was 1.42.

It was assumed that the oil and gas in the reservoir maintained volumetric and phase equilibrium at all times. This assumption, according to the author, may not be strictly true, but calculations are almost impossible without it. Permeability, saturation relations for California oil sands under reservoir conditions are not yet available in the literature, hence it is impossible at present to make reliable predictions of field performance from laboratory data. The preliminary investigations reported in this paper, however, suggests that future application of such information may furnish workable solutions to some of the perplexing problems facing the industry.

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REVIEW OF RECOVERY EXPERIENCE. F. C. Minshall, Assistant to the Vice President, Continental Oil Co., Los Angeles, Calif.

THIS paper reviewed past experience in oil recovery in several California fields and attention was directed to the fact that recoveries naturally varied with the age of the fields. The review of recoveries per acre for the various fields mentioned as of January 1, 1942, range from a high of 416,000 bbl. per acre for Long Beach, which is 21 years old and with a thick sand, to a low of 4,600 bbl. per acre for the Wasco field, which is new and has a relatively thin sand. Recoveries per acre-foot, however, for Long Beach and Wasco are respectively 295 and 165 bbl., which are relatively close when age is considered. Kettleman North Dome field is cited as an outstanding example of varying recovery factors within a single pool. It was brought out that although the field recovery has been only 48 bbl. per acre-foot, Section 29-21s-17e has produced 46,500,000 bbl. of crude oil or 228 bbl. per acre-foot.

In general, fields with similar sand conditions and reservoir control, thin sands have greater recovery per acre-foot, probably because of less bypassing due to gas and water expansion. In water-drive fields, recovery is not materially increased by close drilling, although production per acre-foot is greater than for fields of gas-expansion type. The factor of acre-foot recovery is a relative basis for comparison of performance between fields, within an oil province, and may be used in making better estimates of ultimate production for new fields.

●

RADIOACTIVITY LOGGING IN CALIFORNIA. John C. Stick, Jr., Electrical Engineer, Lane-Wells Co., Los Angeles, Calif.

RADIOACTIVITY logging in California has offered the widest scope for investigation yet encountered, both from the standpoint of the geological complexity and the variety of formations experienced. Recent experimental efforts have been directed towards the development of a curve which will record through casing the amount of fluid contained within formations. The result of these investigations has been the recent introduction of the neutron curve.

The neutron curve responds primarily to the amount of hydrogen within the zone of measurement. It is accomplished by bombarding the formation with a strong source of neutrons. The neutron is one of seven fundamental particles of matter. Its mass is about 1,800 times that of the more familiar electron. Due to the nearly equivalent mass of the neutron and hydrogen nuclei, the latter has the particular ability to slow down the neutrons to a far greater extent than any other common element or substance. The bombardment of the formation by neutrons results in the emission of hard gamma rays from the solid portion of the rock. A portion of these gamma rays, in turn, reach the measuring instrument which, as in the case of the gamma ray curve, is an ionization chamber.

Results so far obtained indicate the gamma ray

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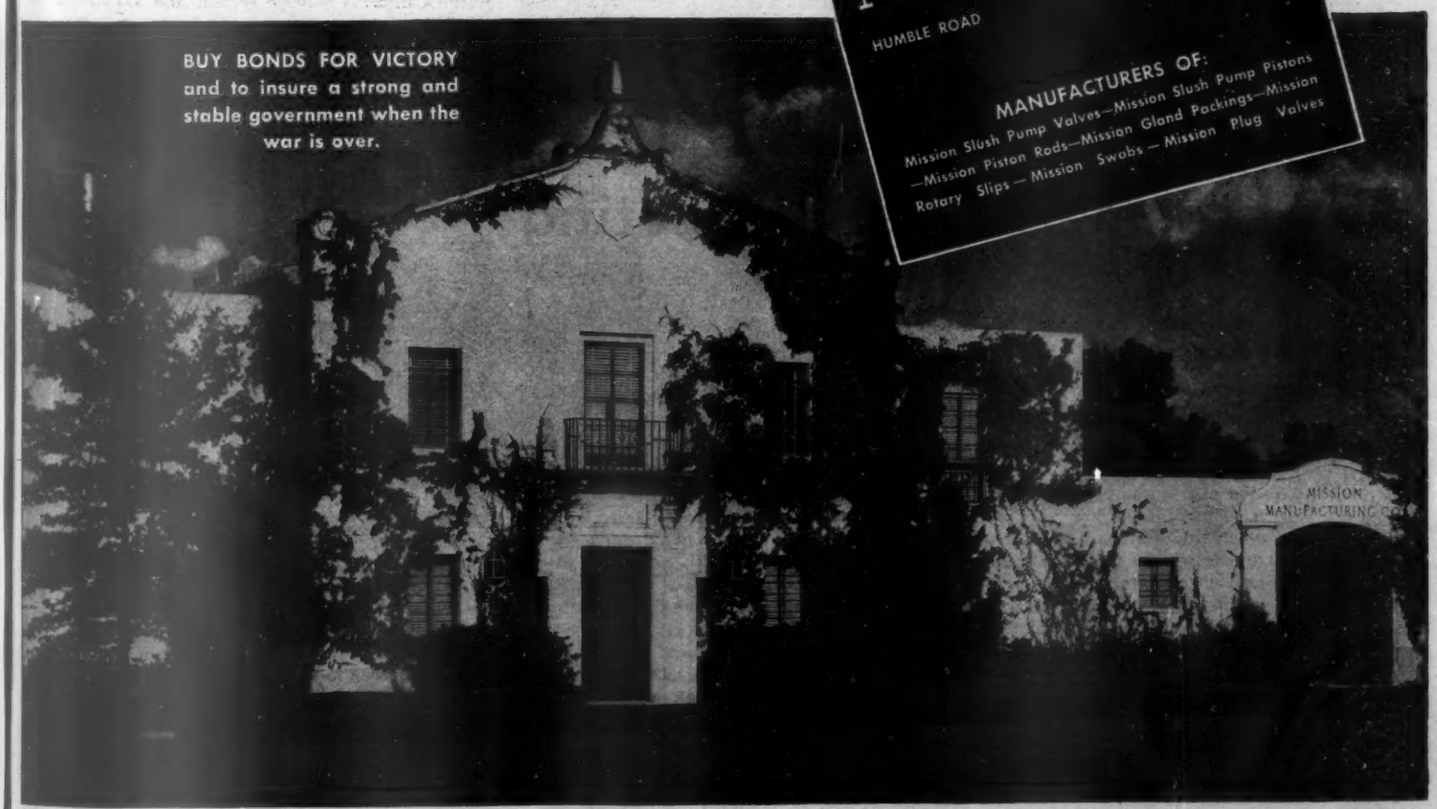

curve can be utilized to advantage in defining formations through casing in the majority of California fields. The use of the neutron curve for stratigraphic studies has been of material benefit in areas indicating unusual gamma ray characteristics. The neutron curve also opens up a new field of investigation for the study of formation porosities.

●

THE USE OF ELECTRODE SPACING IN WELL LOGGING. Richard H. Zinzer, Petroleum Engineer, Union Oil Co., Orcutt, Calif.

AN effort has been made to establish an empirical correlation between formation resistivity for a series of electric-log curves and water saturation and oil productivity of sand. Electric logs were obtained by recording with ten different electrode spacings through the same interval of a well. In the analysis of these curves all factors except two, a dependent and independent variable, were held constant. The interval studied had been cored and a large number of samples were analyzed in the core laboratory in order to compare the values of permeability and saturation with the measured values of formation resistivity. Results of this analysis indicate first, the depth to which mud filtrate enters a sand body; second, a correlation between permeability and sand resistivity for shallow penetration depths; and third, that the water saturation for an oil sand can be determined from the measured sand resistivity after making suitable corrections for sand thickness. The procedure in the last method depends on a thickness-factor correction and a theoretical curve. The accuracy of the theoretical curve is now being tested in the laboratory.

●

CRUDE-OIL EMULSIONS AND THEIR ELECTRICAL RESOLUTION. Robert L. Pettefer, Electrical Engineer, Petroleum Rectifying Co., Long Beach, Calif.

OIL-FIELD emulsions are stabilized by emulsifying agents which are present in the form of ions and polar molecules and which are adsorbed at the liquid-liquid interface. The emulsions are resolved when the adsorbed molecules are reoriented by a high potential-electrostatic field.

Flow diagrams are shown to illustrate the flowline system in which the oil flows directly from the well through the electric dehydrator; the gravity flow system in which the wet oil is produced into a tank located at a higher level than the electric dehydrator and consequently flows through it by liquid head and the tank or batch system which utilizes a pump to force the oil through the electric dehydrator. Automatic heating systems and automatic control equipment for electric dehydrating plants now make it possible to leave these plants unattended for long periods of time. In the electrical resolution of the emulsion the electric field disturbs the adsorbed film on each drop probably by causing the polar molecules in this film to reorient themselves. This reorientation weakens the film about each drop because the polar molecules are no longer tightly adsorbed at its surface. The automatic features of an electric dehydrator as brought out in the paper have many advantages, the outstanding of which is the fact that operators may overcome the acute labor shortage with which they are faced.

●

VOLUMETRIC AND VISCOSITY STUDIES OF GAS AND OIL FROM THE SANTA MARIA VALLEY FIELD. R. H. Olds, B. H. Sage and W. N. Lacey, California Institute of Technology, Pasadena, Calif.

IN recent years a reasonable quantity of experimental data have been accumulated concerning the volumetric behavior and the viscosity of hydrocarbon systems. One of the main objectives for such work is the attempt to predict the properties of naturally occurring hydrocarbon mixtures under the conditions encountered in nature. At the present time the volumetric behavior of homogenous hydrocarbon mixtures can be predicted with reasonable accuracy within certain ranges of composition over a relatively wide range of temperature and pressure. Heterogeneous systems offer a more difficult problem.

A study of the volumetric behavior and the viscosity of the liquid phase of several mixtures of oil and gas from the Santa Maria Valley field was carried out. The work included the determination of the specific volume, at temperatures of 100°, 190° and 250° F., of the trap liquid and of four mixtures of this constituent, with the co-existing trap gas from a surface separator in this field. These measurements were extended to pressures of 4,000 lb. per sq. in. The viscosity of three mixtures of the trap samples were ascertained at 100°, 190° and 250° F., for pressures up to 5,000 lb. per sq. in. It is believed that these data are sufficient to establish the volumetric behavior and the viscosity of the liquid phase of homogeneous and heterogeneous mixtures of the trap samples at pressures somewhat above 3,000 lb. per sq. in. at the above-mentioned temperatures, for gas-oil ratios below 1,000 cu. ft. per bbl.

●

STEEL AND THE OIL INDUSTRY DURING THE WAR. Eugene L. Davis, Assistant Director of Production, OPC, District 5, Los Angeles, Calif.

THIS paper reviews developments in the metal industry prior and subsequent to the declaration of war and the necessity of restricting use of vital metals in drilling and production activities. A total of 32,140 wells were drilled in 1941 and it has been estimated that 19,000 will be drilled during the current year. At the rate of completions for the first 8 months of this year the total for 1942 will be very close to what was originally estimated.

It was brought out that exceptions to orders are being judged on certain merit factors which are given field or pool-wide application in any given field wherever practical.

●

SCRAP AS RELATED TO THE OIL INDUSTRY. Louis M. Dreves, War Production Board, Los Angeles, Calif.

THE War Production Board has delegated to its bureau of conservation the responsibility of developing salvage programs for waste materials, iron and steel scrap, nonferrous metals, cotton and woolen rags, paper, rubber and burlap.

The author calls attention to the organization of the California salvage section and asks close cooperation. From September 1 to December 31 it is necessary to accumulate a stock pile of 7,000,000 tons of scrap metal to take care of requirements during the winter.

●

Gulf Foremen Attend Meeting

FOREMEN of the Gulf Oil Corp. producing department attended a 2-day conference in Tulsa last week. Men at the meeting came from the following states: Oklahoma, Kansas, New Mexico, Illinois and Michigan.

The accompanying photo was taken at a dinner held at the Tulsa Club at which S. G. Sanderson, general superintendent of Gulf Oil Corp., presided. Those in attendance at the dinner were:

Production department: S. G. Sanderson, H. C. Davis, A. M. Bell, Jr., F. R. Smith, H. F. Brindel, H. R. Auerswald, L. L. Gray, D. O. Barrett, H. A. Hodgson, T. A. Rueb, I. G. Clark, R. F. Dunham, R. M. Bordeaux, D. M. Goodrich, D. L. Trax, C. L. Barrett, T. L. Briggs, R. L. Clarke, G. C. MacDonald, J. L. Dimit, Carl Eager, F. D. Sanford, J. C. Sherwood, L. S. Ness, H. R. Rockhold, Charles Taylor, L. F. Brown, W. H. Bettes, J. P. Meyers, W. A. Clapper, J. J. Donovan, R. L. Frye, S. H. Letteer, H. R. West, M. Abbott, C. C. Cummings, A. D. Elliott, C. O. Orr and J. R. Clarke.

L. S. Love, J. S. Grosshart, A. H. Morrison, Maple Taylor, J. W. Roark, W. B. Nace, R. E. Herndon, Charles Prater, T. A. Trax, G. O. Baysinger, Frank Musgrave, Frank Sutton, Doyle Johnson, J. B. Gillenwater, Lester LeFavour, Ralph Clarkson, W. H. Duley, D. D. Hutchinson, M. R. Dimple, O. J. Stephens, P. L. Gassett, A. E. Brice, Arthur Abner, M. D. Huntsberry, I. A. Barr, L. W. Powell, O. L. Stevenson, P. M. Smith, O. W. Lynch, A. F. Taylor.

Executive department: R. S. Harrison and R. C. Frederick.

Accounting Department: E. D. Loughney.

The *NITRATION* of Aliphatic Hydrocarbons (Part 2)

By GUSTAV EGLOFF, M. ALEXANDER, and P. M. VAN ARSDELL
Universal Oil Products Co. Research Laboratories, Chicago, Ill.

This is the concluding part of the series presented on the Halogenation, Oxidation, and Nitration of Aliphatic Hydrocarbons. The authors, Gustav Egloff, M. Alexander, D. V. Nordman, and P. M. Van Arsdell, of the Universal Oil Products Co., have therein traced the reactions of these hydrocarbons through both the commercial and theoretical applications. The series began in the issue of August 20.

3. Nitration of Alkenes

A. Nitric acid.

Concentrated or fuming nitric acid reacts with alkenes to form both nitration and oxidation products such as nitroalkanes, nitroalkenes, and nitro-nitric esters. Low temperatures and dilution with an inert solvent reduce secondary reactions by inhibiting oxidation and formation of nitrous reagents.[38]

Wieland postulated a mechanism for the action of nitric acid on alkenes.[39,40] He assumed that it adds not as an electrolyte, but as $HO\text{-}NO_2$. The production of 2-methyl-3-nitro-2-butene and the nitric ester of 2-methyl-3-nitrobutan-2-ol from 2-methyl-2-butene was evidence of the addition as $HO\text{-}NO_2$.

Other evidence supporting the addition of nitric acid as $HO\text{-}NO_2$ is the isolation of 2-nitroethan-1-ol as a reaction product from the passage of ethene into fuming nitric acid.[41]

$$CH_2{=}CH_2 \rightarrow CH_2(OH)CH_2(NO_2) \rightarrow CH_2(NO_2)CHO$$
$$\rightarrow CH_2(NO_2)CO_2H \rightarrow CH_2NO_2 \rightarrow CH(NO_2) = NOH$$
$$\rightarrow CH_2(NO_2)_2 \rightarrow C(NO_2)_2 = NOH \rightarrow CH(NO_2)_3$$

The work of Michael and Carlson, however, indicates that nitric acid adds as $H\text{-}ONO_2$ rather than as $HO\text{-}NO_2$.[38] Nitration has been accomplished indirectly in various cases by nitrous gases formed from oxidative side reactions. A mechanism involving addition of nitrogen tetroxide to the double bond as the first step has been offered to account for some of Wieland's products. The formation of the nitric ester of 2-nitroethan-1-ol from ethene, already cited, was accomplished by a mixture of nitric and sulfuric acids rather than by nitric acid.[40] The reactive agent in such a mixture, the mixed anhydride $HOSO_2ONO_2$ instead of nitric acid,[24] should lead to the formation of the sulfuric ester 2-nitroethan-1-ol, and the nitro-nitric ester would result from the nitric ester radical replacement of the less negative sulfuric ester group.

B. Nitrogen oxides.

Addition of nitrogen oxides gives derivatives which are not always predictable because of the ability of the oxide molecule to rupture at different points and other capacities of the reagent such as oxidation and polymerization. Since nitroso, nitro, nitrite, and nitrate groups may result from nitrogen oxides, a number of combinations are possible. The type of product appears to be partly determined by the relative polarities of the unsaturated carbons.[42] In some instances the yields of the various products are greatly affected by the solvent.[42,43,44]

Nitrous fumes resulting from concentrated nitric acid are mixtures of nitrogen tri- and tetroxides.[45] 2-Methyl-2-butene with nitrous fumes yielded the dimeric nitroso-nitric ester, the dimeric nitroso-nitro compound, a nitroalkene, and the dinitro compound.[46] Some evidence was obtained to indicate the presence of the nitroso-nitrous ester or the nitro-nitrous ester or both. The former may be produced by addition of nitrogen trioxide as —ONO and —NO, and the latter by oxidation of the former. The nitro-nitrous ester, however, could be formed by direct addition of nitrogen tetroxide to the original hydrocarbon. Most of the dinitro compound is probably formed by addition of the tetroxide to the alkene but might likewise result from oxidation of the nitroso-nitro derivative. Decomposition of a previously formed addition product is a possible explanation for the nitroalkene.

The products identified from 2-methyl-2-butene and pure nitrogen tetroxide were the dimeric nitroso-nitric ester, the dinitro compound, and a nitroalkene.[43,45] Experiments carried out over a range of temperature indicated that the course of the reaction was affected comparatively little by the temperature in contrast to work which indicated that the lower the temperature the more complex the reaction with alkenes and the more unstable the product.[43,46] Products formed at —80° decompose below 0°, however, and those ordinarily obtained may be decomposition products.[43] The course of the reaction depends mostly on the polarities of the unsaturated carbon atoms and very little on the proportions in which the components are present in the equilibrium: $2\ NO_2 \rightarrow O_2N\text{—}ONO$. That the ratios of products formed is relatively independent of this equilibrium is indicated by the fact that yields of the ester obtained at —7° without solvent are comparable to those in the gas phase where the tetroxide is considerably more dissociated.

In experiments on the action of nitrogen tetroxide on 2-methyl-2-butene and 2-methyl-2-pentene, the yield was diminished by too great an excess of nitric acid.[47] Use of reagent more dilute than 65 per cent had the same effect. Rise in temperature caused decomposition, since many of the addition products of nitrogen oxides and alkenes are rather unstable. Secondary reactions may be inhibited by maintaining temperatures at 0° or lower.

The main products from the action of nitrogen tetroxide on 2-methyl-propene are apparently the nitro-nitrous ester, the dinitro compound, the dimeric nitroso-nitric ester, and a nitroalkene.[43] The presence of nitrogen trioxide from reduction of the tetroxide before the addition was indicated by the isolation of the dimeric nitroso-nitro compound. At low temperatures, moderate changes in temperature do not affect the course of the reaction to any great extent.

The reaction products of 2,3-dimethyl-2-butene and nitrogen tetroxide contain the nitro-nitric ester, the dinitro compound, and a double compound of the nitro-nitric ester and the dinitro compound.[44] Under strong oxidative conditions, isolation of the dinitro compound is sometimes impossible since it is all present in the double compound. The nitroso-nitric ester formed by direct addition of the tetroxide to the alkene may have been an intermediate in the formation of the nitro-nitric ester. Another possible mechanism for the formation of the nitro-nitric ester is oxidation of the alkene to the oxide and reaction of this product with more nitrogen tetroxide.

The addition of nitrogen oxides to alkenes is complex due to the diverse capacities in which these oxides can function.[48] A prediction of the products might be expected by consideration of the relative polarities of the unsaturated carbons and of the groups which arise from the intramolecular scission of the oxide. The groups from nitrogen tetroxide possible for addition decrease in electronegativity in the order $ONO_2 > ONO > NO_2 > NO$. The greater difference in polarity between the groups ONO_2 and NO than between ONO and NO_2, and large differences in polarity of the carbon atoms concerned should, therefore, favor the formation of the nitroso-nitrate over that of the nitro-nitrite. Since nitrogen tetroxide is also an oxidizing and polymerizing reagent, the experimental verification of this behavior with alkenes is lacking.

Nitrogen pentoxide reacts with alkenes such as 2,3-dimethyl-2-butene to produce nitric esters, dinitro compounds, nitro alcohols, and nitro-nitrates.[48] Nitroso compounds are postulated intermediates. Propadiene and 2,3-dimethyl-1,3-butadiene form nitrosites with nitrogen trioxide.[49]

Alkenes of the formula $RR'C{=}CHR''$ and $RR'C{=}CR''R'''$ reacted readily to form nitrosyl chloride addition products, but those of the type $RCH{=}CHR'$ reacted in this manner only with difficulty.[50] The types having a hydrogen atom on one or more of the unsaturated carbons can form the oximes, $RCHClC(=NOH)R'$ or $RR'CClC(=NOH)R''$, by migration of a hydrogen atom.

C. Catalytic.

Nitric oxide reacts with ethene at high temperature in the presence of a catalyst to produce hydrocyanic acid, ammonia, and products of decomposition, oxidation, and polymerization.[51] A mixture of alumina and quartz was the most ef-

[38] Michael and Carlson, J. Am. Chem. Soc. 57, 1268 (1935).
[39] Wieland and Rahn, Ber. 54, 1770 (1921).
[40] Weiland and Sakellarios, Ber. 53, 201 (1920).
[41] McKie, J. Chem. Soc., 962 (1927).
[42] Michael and Carlson, J. Am. Chem. Soc. 59, 843 (1937).
[43] Michael and Carlson, J. Org. Chem. 5, 1 (1940).
[44] Michael and Carlson, J. Org. Chem. 5, 14 (1940).
[45] Michael and Carlson, J. Org. Chem. 4, 169 (1939).
[46] Schaarschmidt and Hofmeier, Ber. 58, 1047 (1925).
[47] Klingstedt, Ber. 58, 2363 (1925).
[48] Demyanov, Compt. rend. acad. sci. U.R.S.S. 1930A, 447; C.A. 1215 (1931).
[49] Demyanov and Ivanov, Compt. rend. acad. sci. U.R.S.S. 1, 318 (1934); C.A. 28, 4374 (1934).
[50] Tuot, Compt. rend. 204, 697 (1937).

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fective catalyst. Yields of hydrocyanic acid increase with the proportion of ethene in the mixture and with the reaction temperature to 1,000° at which both decomposition and polymerization of the ethene takes place rapidly. The initial step in the production of hydrocyanic acid is probably the formation of ammonia by the reduction of nitric oxide. The ammonia then reacts on ethene or one of the unsaturated intermediate products of the decomposition of ethene to produce hydrocyanic acid.

D. Electrochemical.

Alkenes can be nitrated electrolytically.[51] Electrolysis of acetone solutions of nitrates or nitric acid and ethene resulted in the addition of nitrate and condensation. Increase in current density favors ester formation since this increase causes higher concentration of nitrate groups. With low-current density, the concentration of nitrate is comparatively low, and condensation predominates. Ester formation is favored by anode material which gives a higher overvoltage and by dilution of the ethene with an inert gas. Propene and 2-butene in acetone solutions of calcium nitrate also formed nitric acid esters, and the alkadiene, 2-methyl-1,3-butadiene, was nitrated under similar conditions.

4. Nitration of Alkynes

The nitration of ethyne yields complex nitrogenous compounds in addition to trinitromethane. Oxidation also takes place, and the products undergo secondary reactions.[52] The principal oxidation products are oxalic acid and carbon dioxide.[53] Absolute and fuming nitric acid and nitric-sulfuric acid mixtures are used as reagents.

The rate of reaction decreases with dilution of the acid and increases with temperature elevation.[52] The catalysts, chloroplatinic acid and the nitrates of silver, uranium, and copper were ineffective in increasing the yield of trinitromethane, but mercuric nitrate was beneficial. Chloroplatinic acid and silver and uranium nitrates favored oxidation.

McKie accounts for the production of trinitromethane by the following reaction.[41]

$$CH{\equiv}CH \rightarrow CH(OH){=}CH(NO_2) \rightarrow CH(OH)_2.CH(NO_2)_2$$

$$\rightarrow CH(NO_2)_2.CHO \rightarrow CH(NO_2)_2.CO_2H \rightarrow CH_2(NO_2)_2 + CO_2$$

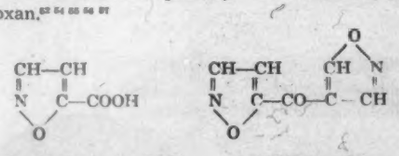
$$CH_2(NO_2)_2 \xrightarrow{HNO_2} C(NO_2)_2{:}NOH \rightarrow CH(NO_2)_3$$

The latter part of this mechanism may be instead:[53]

$$CH(NO_2)_2.CO_2 \xrightarrow{HNO_2} C(NO_2)_2.CO_2H \rightarrow CH(NO_2)_3 + CO_2$$

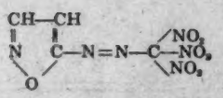
Quilico and Freri also agree to the postulation of trinitroacetic acid as an intermediate.[52]

Complex products from the passage of ethyne into cold fuming nitric acid have been identified and each contains one or more isoxazole nuclei. These products are δ-isoxazolecarboxylic acid, δ,β'-diisoxazolyl ketone, δ-isoxazoleazotrinitromethane, and a small quantity of δ,δ-diisoxazolylfuroxan.[52 54 55 56 57]

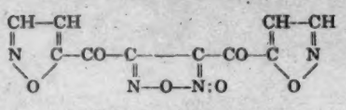


δ-Isoxazolecarboxylic acid

δ,β'-Diisoxazolyl ketone

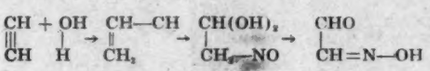


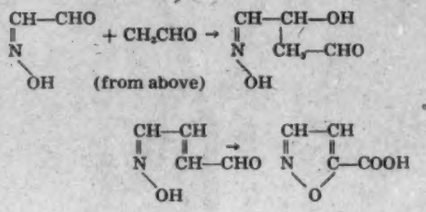
δ-Isoxazoleazotrinitromethane



δ,δ'-Diisoxazolyfuroxan

Since acetone vapors were present in the experiment, and the yield of δ,β'-diisoxazolyl ketone was materially decreased with decreased concentration of acetone, it appears that acetone is a reactant in the formation of the ketone.[54] As isoxazole derivatives have been prepared from unsaturated aldehydes and nitrous vapors, it was suggested that crotonic aldehyde may be an intermediate in the formation of the acid.[52] The following mechanism was later proposed for the formation of the acid.[54]





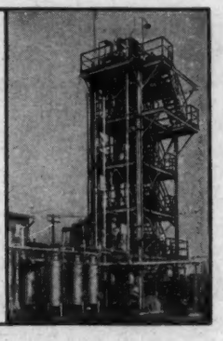
The first part of this mechanism, to the aldehyde oxime, can apply to δ,β'-diisoxazolyl ketone as well. Isonitroso acetone may be a reactant in the latter part of the mechanism. Two molecules of ethyne and one molecule of acetone are utilized in the formation of this ketone.[56] Two molecules of acetone and two of ethyne are necessary for the formation of δ,β'diisoxazolyfuroxan and δ-acetylisoxazole is probably an intermediate.[57]

Ethyne reacts also with nitric oxide at high temperatures in the presence of catalyst to produce hydrocyanic acid.[57] A slightly higher yield was obtained than from ethene under the same conditions, but more polymerization products and formaldehyde were obtained.

[51]Ohman, Z. Elektrochem. 42, 862 (1936).
[52]Quilico and Freri, Gazz. chim. ital. 59, 930 (1929).
[53]Orton and McKie, J. Chem. Soc. 117, 283 (1920).
[54]Quilico and Freri, Gazz. chim. ital. 60, 172 (1930).
[55]Quilico, Gazz. chim. ital. 62, 503 (1932).
[56]Quilico, Gazz. chim. ital. 61, 265 (1931).
[57]Quilico and Freri, Gazz. chim. ital. 62, 436 (1932).

CHEMICALS *from* PETROLEUM

By W. T. ZIEGENHAIN



CARBON TETRACHLORIDE

IN the long list of materials classed as "chemicals" which can be made from petroleum, none typifies the change in properties which comes from simple chemical substitution better than the manufacture of carbon tetrachloride from methane gas.

Methane is the principal constituent of natural and refinery gases and is the simplest petroleum hydrocarbon. Therefore, it attracts first attention among researchers who propose to synthesize chemicals or materials from petroleum. However, upon investigation, the early researchers soon learned that methane was relatively stable chemically and when high temperatures were reached, and at which replacement or removal of one or more of the hydrogen atoms takes place, the reaction could not be easily controlled. All sorts of side reactions occurred then. Also, complete dissociation of the methane molecule into hydrogen and carbon took place to a relatively high degree. Therefore, in modern conversion processes, the oxidation or halogenation of the molecule is accomplished under very close temperature, pressure, time, and stoichiometrical conditions.

Several methods are available for preparing carbon tetrachloride from methane and chlorine, but first, it is interesting to compare the properties of the petroleum hydrocarbon methane (CH_4) with those of carbon tetrachloride (CCl_4) and note their wide differences as suggested earlier. Methane is a gas at ordinary temperatures, carbon tetrachloride a liquid. Methane is most readily combustible while the latter is used to put out fires. Methane is stable at all normal conditions while carbon tetrachloride decomposes even in contact with metals such as iron, zinc, or copper and particularly when in the presence of moisture.

Briefly discussing the methods for preparing carbon tetrachloride from petroleum, the direct replacement of four hydrogen atoms with four chlorine atoms in the methane molecule is of most interest. This is accomplished if methane and chlorine are mixed in the proportion of 9 to 1 and diluted with HCl and then passed at a temperature in excess of 842° F. over a catalyst of partially reduced cupric chloride which contains 1 per cent of cerium chloride.

Another suggested method calls for passing methane, chlorine, and hydrogen chloride in the volumetric relationship of 16 : 64 : 90 respectively over activated carbon at 977° to 986° F. Still another process employs air instead of chlorine gas, while another procedure provides for saturating carbon disulfide with chlorine and warming the mixture to 104° to 140° F., in the presence of chromium, silicon, iron, and manganese.

Adding to the statement of properties given earlier, it should be stated that carbon tetrachloride is relatively heavy (sp. gr. 1.595), is colorless, and boils at 170.1° F. under a pressure of 760 mm.

It is miscible with alcohol, ether, chloroform, benzene, and very slightly soluble in water.

Its principal uses include many commercial as well as household applications. It is the intermediate often used in chemical synthesis to supply chlorine, it has a high and desirable solvent action among many materials, serves as a base for the manufacture of chloroform and is a substitute for petroleum dielectric oils in a few instances. It also finds a broad use among lacquers, soaps, and rubber cements as a solvent or plasticizer.

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In designing National Unit Pumpers our engineers have endeavored to incorporate every mechanical refinement to minimize operating care and maintenance...Although they have accomplished this to an extensive degree, regular attention is conducive to longer life and continued efficient service.

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- CHANGE OIL each fall and spring or more often if atmospheric or operating conditions cause sweating of case walls and contamination and sludging of oil.
- USE PROPER OIL as specified on name plate. This should be a high grade, well refined petroleum oil of recommended viscosity and cold test. It must be non-corrosive to gears, roller bearings and bronze parts, containing no abrasive matter, and have good defoaming properties.
- CHECK GREASE FITTINGS at least once a week, adding lubricant when necessary. If the lubricating is properly done, these frequent inspections are only precautionary, and actual additions of lubricant will be necessary only at long intervals. Add grease carefully in order that the small relief valve may function when reservoir is filled. Oil seals should be checked for possible damage from too rapid filling with high pressure guns.
- USE PROPER ROLLER BEARING LUBRICANT. A fluid lubricant such as transmission oil is recommended for walking beam and wrist pin bearings—particularly the needle types. Avoid low grade, heavy cup greases which may cake and lock the rollers.
- CHECK ALL BOLTS FOR TIGHTNESS AT REGULAR INTERVALS.
- KEEP THE PUMPER CLEAN AND REPAINT WHEN NECESSARY.
- USE SHORTEST STROKE possible consistent with reasonable speed and well requirements, as this will reduce the gear load.
- USE PROPER PUMPING SPEED to avoid pounding fluid which imposes excessive loads on all equipment.
- ADJUST COUNTERWEIGHTS to meet changing well conditions. This will reduce the pumper load and save power. Most National units are equipped with crank counterweights, permitting easy and accurate adjustment. *WHY NOT MAKE USE OF THIS FEATURE?*

THE NATIONAL SUPPLY COMPANY

Executive Offices: Pittsburgh, Penna. • General Sales Office: Toledo, Ohio • Division Offices: Fort Worth, Texas; Tulsa, Okla.; Torrance, Calif. EXPORT: The National Supply Corporation, 30 Rockefeller Plaza, New York, N. Y., U. S. A.; River Plate House, 12 South Place, London, E. C. 2, *Limited Liability.*

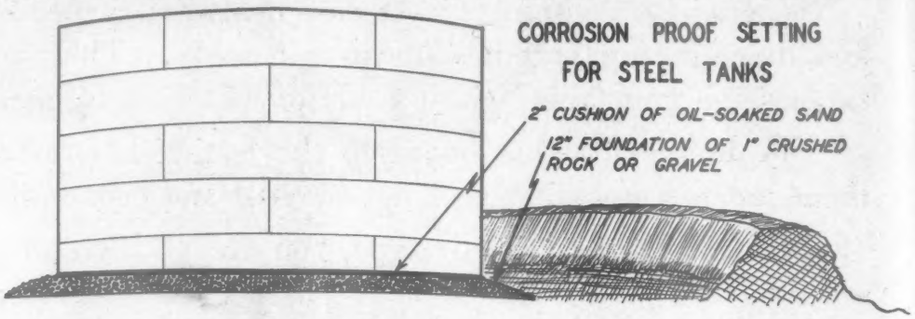
Proper Installation Prolongs Useful Life of Tanks

STOCK tanks are among the necessary items of oil-producing equipment that are now difficult to replace. The operator has no choice but to make his present lease tanks last as long as possible. In this respect, much encouragement can be found in the fact that the life of a steel tank can be prolonged by 50 to 400 per cent if recommended practices are followed for installation and maintenance.

A chemical company, using a large number of steel tanks has, after extensive investigation,

standardized upon a tank-setting procedure which appears to give maximum results with minimum cost. The possibility of the tank tilting due to differential settling of the soil is obviated under all common soil conditions. Of even greater importance, the tank bottom is well protected on its lower side against corrosion.

Whenever possible, the tank is placed on high ground so that drainage will be away from the location. The location is then leveled and the fire walls are built. Next step is the laying of the tank foundation. Crushed rock or gravel is spread out over an area of diameter about 8 ft. greater than the diameter of the tank. The thickness of this foundation depends somewhat on drainage conditions, but it is usually 12 in. high. In cases where it is considered likely that water will accumulate inside the dike, the rock mat is made thicker. The rock should not be of uniform size, but should be fairly well graded.



The top of the rock mat is tamped but it is not made level. Its center is slightly higher than at the sides. The slopes from center to side is about 2 in. in 10 ft. Thus for a 20-ft. tank, the center is raised about 2 in.

Over the prepared rock mat a 2-in. cushion of oil-soaked sand is spread and tamped lightly. If the underlying rock is fairly well graded, the sand does not penetrate into the porous mat to any great extent.

In locations where crude oil is not readily available, road oil or fuel oil can be used for saturating the sand, but obviously the weathered crude commonly available from a waste pit on an oil-producing lease is ideally suited for the purpose. The oil and sand are always mixed before the sand cushion is spread.

Before the steel plates making up the bottom of the tank are placed on the oil-soaked sand, it is ascertained that there is no water or moisture on their lower sides. The steel rests directly on the sand with no tar paper or other material between.

The upward slope of the tank bottom toward its center helps to prevent water from working its way under the plates.

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4. *NO WHARFAGE.* There is no wharfage at our own private docks.
5. *SPEED WITH SAFETY.* Day and night crews, complete facilities, eliminate all shipping delays.
6. *LARGE TANK CAR FLEET.* Now working night and day, delivering essentials of war.
7. *NO CONTAMINATION.* Separate pumps, lines, storage zones for dissimilar commodities.

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Freight cars—particularly tank cars—are vital to Victory. They must be loaded, unloaded, kept moving with all possible speed. Delays may cost lives!

QUESTIONS ON TECHNOLOGY

Desulfurization for 91-Octane Manufacture

We have a crude oil that is nearly good enough for making 91-octane gasoline. Will catalytic desulfurization increase the octane number from 89 to 91 when using 4 cc. of lead?—A. W. M.

By W. L. NELSON, Technical Editor

Many of our crude oils contain light gasolines that are almost suitable for 91-octane aviation gasoline but fall short by only a few points in octane number. In a few instances the failure to attain the desired octane number can be cured by a more accurate control of the boiling range. The 10 per cent distillation temperature must be 125°-135° F., and the 90 per cent point can be reduced as necessary in attaining the highest possible octane number. The limit of how far the 90 per cent point can be reduced is usually the specification that the sum of the 10 and 50 per cent temperature must exceed 307° F. This limits the 90 per cent point to about 220° F. A further reduction in the 90 per cent point necessitates that the 10 per cent point be increased (to 140°-150° F.) with the result that the yield decreases to almost the vanishing point. Fractionation is somewhat important but inasmuch as fractionation in a simple topping plant is never really good, there is not much hope in this direction. The main point of which to be certain is that the top temperature control must not wander through a range that will cause the incorporation of low-octane high-boiling products.

Other methods of increasing the octane number are:

1. Use of isopentane as a blending agent.

2. Superfractionation in two or more towers for the removal of a normal paraffin hydrocarbon or several of them. These hydrocarbons have exceedingly low octane numbers; hexane 34, heptane 0 and octane minus 28.

3. The use of high-octane naphthas from naphthenic crudes or aromatic blending stocks.

4. Catalytic desulfurization for improvement of the lead susceptibility of the material.

The last of these, i.e., catalytic desulfurization, has been found to be useful in many instances. Two and possibly three factors are responsible for the increase in octane number (with lead) that is attained. The removal of sulfur usually increases the clear octane number by 1.5 to 2.5 points and the lead susceptibility with 4 cc. TEL produces another increase of 2 to 6 points. Related to these two factors in a confusing way is the probability that in some instances unsaturated or aromatic substances may be produced in small amounts, particularly at high temperatures. Nevertheless, the over-all increase in octane number is about as indicated above for most gasolines. It should be stated that the improvement in octane number varies widely with different stocks, and that good results are often obtained even with stocks that have a low sulfur content.

Numerous discussions[1,2,3] have justified the process by the saving in tetraethyl lead, but so few gasolines can make the necessary 91-octane number required by government specifications with 4 cc. TEL that saving in lead is not altogether a proper criterion when considering the manufacture of 91-octane aviation gasoline. In other words, the octane number of most gasoline stocks cannot be raised to 91 octane by the use of lead alone (4 cc. TEL).

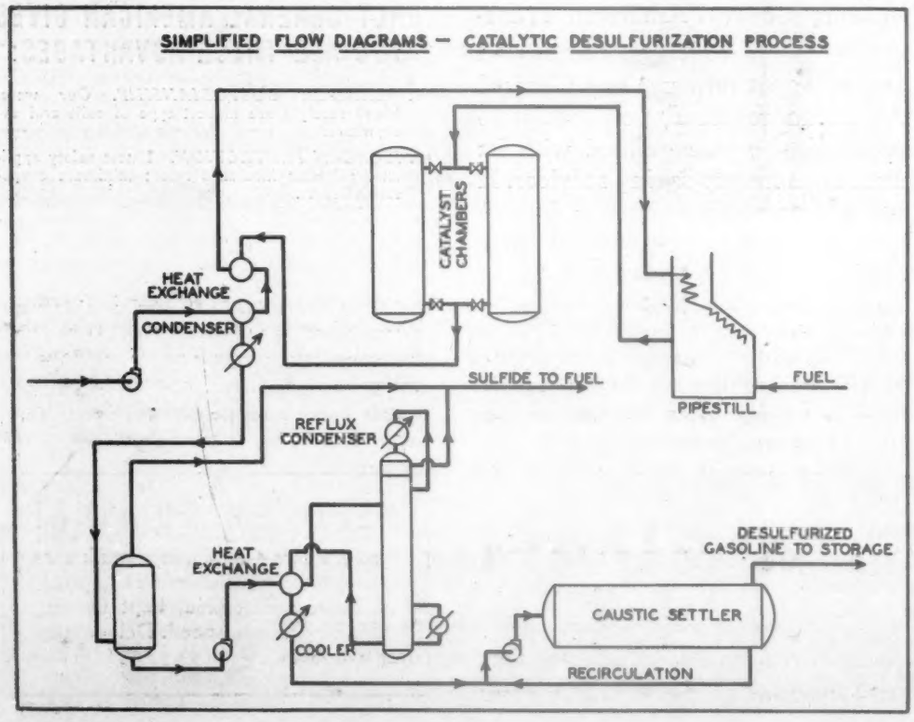
Fundamentally, the process is one of contacting the gasoline stock at 700°[1] or 750° F.[2] in the vapor state with a catalyst such as bauxite or fuller's earth. Sulfur is removed primarily by conversion to hydrogen sulfide with the production of the parent hydrocarbon with which the sulfur was originally connected. Sulfur reduction sometimes reaches 96 per cent although with low-sulfur stocks the reduction may be less. The catalyst life is indicated by the 2,500-5,000 bbl. that may be put through each ton of catalyst. At higher temperature the catalyst life is somewhat less. The catalyst is usually not regenerated, although if cracked or polymerized stocks are processed regeneration will be necessary.

The hydrogen sulfide produced in the process may be separated by fractionation as shown in the diagram on this page but in some instances a caustic wash or combined water and caustic wash may be used.

In a most general way it may be stated that a stock that makes 89-octane number with 4 cc. TEL will in most instances make 91 octane after desulfurization.

References

1. Martin & Carlson, "Catalytic Desulfurization by Use of the Gray Process," The Oil and Gas Journal, p. 138, Mar. 26, 1942.
2. Schulze & Allen, "Catalytic Desulfurization to Improve Aviation Blending Naphthas," Refiner, p. 474, Nov. 1939.
3. Conn, M. W., "Perco Catalytic Desulfurization," regional technical meeting of W.P.R.A., Wichita, Kans., Oct. 4, 1940.
4. Ethyl Gasoline Corp., "Effect of Desulfurization on the Road Antiknock Performance of a New Mexico Straightrun Gasoline," Report RD42-1, Apr. 2, 1942.



Minimum Slope of Tank Roofs

What is the minimum slope per foot necessary to drain a 116-ft. floating roof having a pontoon elevated center?—C. N. G.

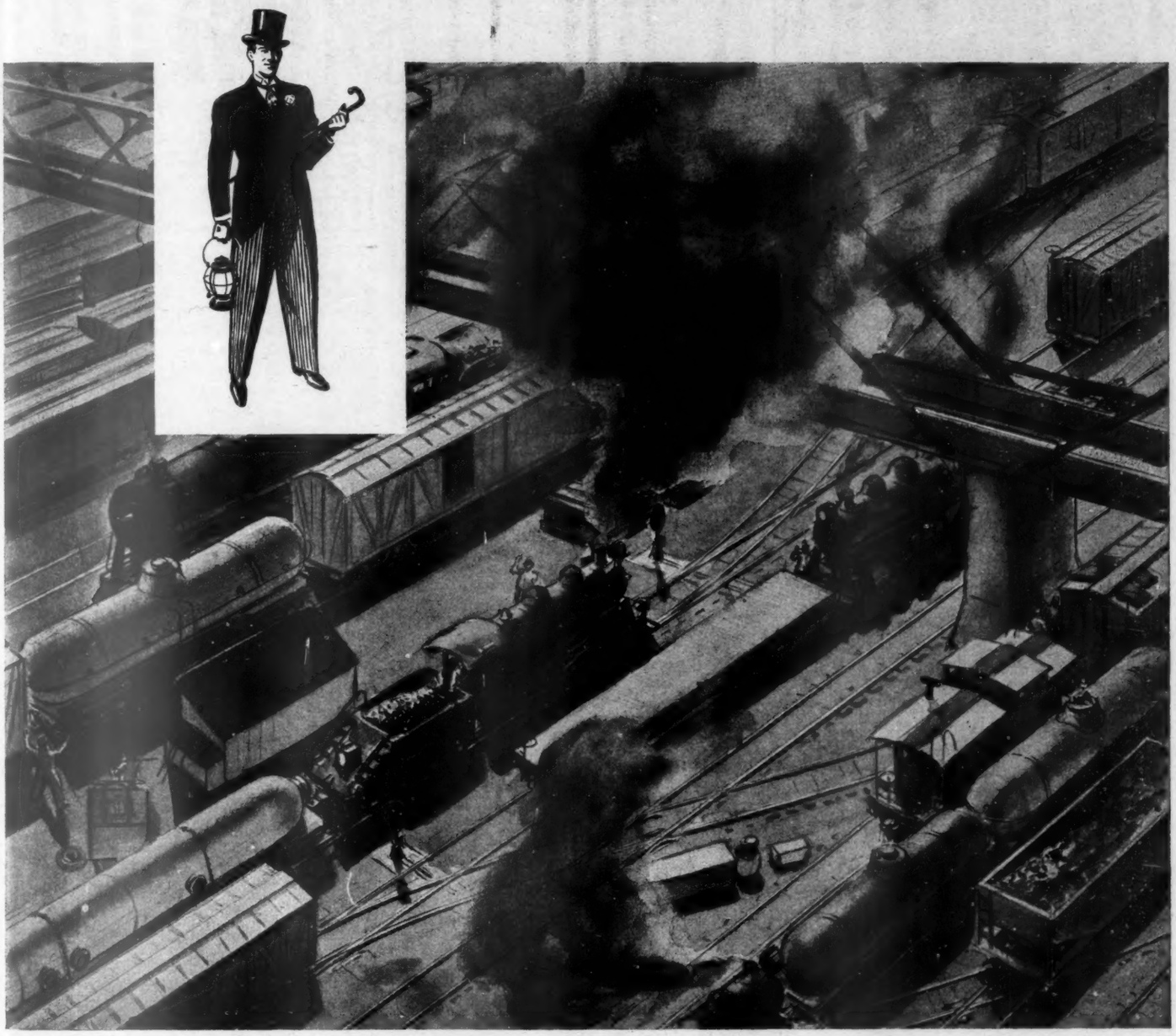
Such matters should be taken to companies that design such types of tank roofs.

No information pertaining directly to this problem is at hand but it is common practice to design sidewalks with a drop of ¼ in. per ft. This slope is supposed to keep the depth of flowing water to a negligible thickness.

Conical tank roofs have, in the past, been built with slopes of 1¼ in. to 2¾ in. per ft., the larger tanks having less slope. The extra height of umbrella-type roofs is usually about 0.135 times the diameter, higher than the height at the edge of the tank. More recently designed tanks seem to employ roofs with smaller slopes than those designed a few years ago.

Snow load would seem to be a more important factor than the drainage of water from the roof. Unless the roof is very steep the snow does not slide off and hence for any tank roof (other than a dome or other special type) a snow load of about 20 lb. per ft. should be provided for. A cubic foot of fresh snow weighs between 5 and 12 lb., but after being moistened with water by rain or melting, the weight per cubic foot may range from 15 to 50 lb.

DIPLOMATS WHO RIDE THE FREIGHT



BMP expediters don't really wear striped pants; but they are *diplomats* in every other way. These men of action are chosen for their resourcefulness and their ability to handle people—for their knowledge of materials and production.

Frankly, our expediters don't ride on freight trains, either; but they do *ride* the freight. From the time a job starts until it is finished, they expedite right to the source of trouble. They live with the materials...in vendors' factories...in plants of raw material manufacturers...in freight yards, wherever necessary to keep the supplies moving.

Getting materials to the job on time is one of today's biggest problems. A priority rating alone is not enough. It takes men who are experts in getting things done...in cutting across routine...in unsnarling priority tangles...and in keeping tempers down while the pressure is on. It takes diplomats to *ride the wartime freight.*

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Construction Features: Self-releasing 30° angle wedges and free-floating gates, self-adjusting to seats, afford smooth, trouble-free performance, long service. Rings are cleaned throughout stroke action. Gates are wedge-locked directly opposite ports and completely unwedged before raising. Ample tolerances provide easy action. Simple construction permits easy replacement of parts.

LUDLOW VALVES

SINCE 1866

Care and Use of Refinery Valves

A series of instructions has been issued by H. M. Nichols, manager of Atlantic Refining Co. regarding the use and care of certain critical war materials in use in the company's plants. Since all refiners are interested in accomplishing the same end, these items will be published serially in coming issues. Mr. Nichols explains:

"The following is sent to each department superintendent with enough copies for each foreman and bulletin board. The items are discussed at a meeting of the foremen and superintendent, after which the men are individually instructed. Since the foreman must sign an order to get the proper clothing and since the tool room checks this order when the goods are returned a definite control exists.

"Through inspections, causes for trouble are eliminated, and these incidents are brought to the attention of the men. The results in saving this vital material, rubber, have justified the time spent."

VALVES are carried in the company's stock as replacement items. Due to the wide variety of materials handled in a refinery, the varying pressures and temperatures, a large stock is necessary. Critical materials must be used to insure safety. Because such materials are to be made available only where needed, extreme care and supervision must be exercised so that such valves are not wasted in less essential service.

Orders for all valves must state the service, temperature and pressure in which each is to be used.

When a valve is removed from the line it must be sent to the repair shop. Here it is tested and reconditioned. It is then returned to the storeroom for stock.

Lines which are torn down for scrap often contain valves. These must be removed and reconditioned.

For proper care of valves the following items have been sent to all superintendents and foremen. They instruct their men accordingly.

Valves must last twice as long—you may not get a new one.

The valve you remove must be repaired—treat it so it can be.

The valve repair shop is now *our* main source of supply. It relies upon you to supply the valves.

Try every valve periodically. Report any which is not in operating condition.

Use the proper size and type for the service.

Use X H bronze valves in steam service where there might be a water hammer.

Use care in adjusting the packing glands.

Don't "throttle" with a gate valve. Open it all the way, or shut it. Otherwise seats will be cut.

Don't use a wrench on second valve hex or the one farther from the joint. A twisted body may be the result.

Don't install a valve while in the open position. The chance of twisting is lessened when closed.

Don't install a valve so that it will carry the weight, the sag or expansion of the line.

Don't cut overlength threads on a pipe to be screwed into a valve. Valve seat will be injured.

Don't fail to blow out a new or altered line. Valve seats will be ruined by chips or dirt.

Don't try to reassemble a valve with disk and stem in the closed position. A scarred seat and a bent spindle may result.

Don't force a leaking valve. Leaks are usually caused by foreign matter on the seat which may be cleared by opening the valve part way to flush.

Don't use a wrench on the hand wheel. The wheel is big enough.

Put grease—the correct grease—in lubricated cocks until there is a back pressure—before operating. Move plug slightly after lubricating.

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Principal products include—Alloy Steels, Tool Steels, Stainless Steel, Hot Rolled Bars, Hoops and Bands, Beams and Heavy Structurals, Channels, Angles, Tees and Zees, Plates, Sheets, Cold Finished Shafting and Screw Stock, Strip Steel, Flat Wire, Boiler Tubes, Mechanical Tubing, Rivets, Bolts, etc. Write for Stock List. Joseph T. Ryerson & Son, Inc. Plants at: Chicago, Milwaukee, St. Louis, Cincinnati, Detroit, Cleveland, Buffalo, Boston, Philadelphia, Jersey City.

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I'LL TAKE THE WHITE ONE EVERY TIME!
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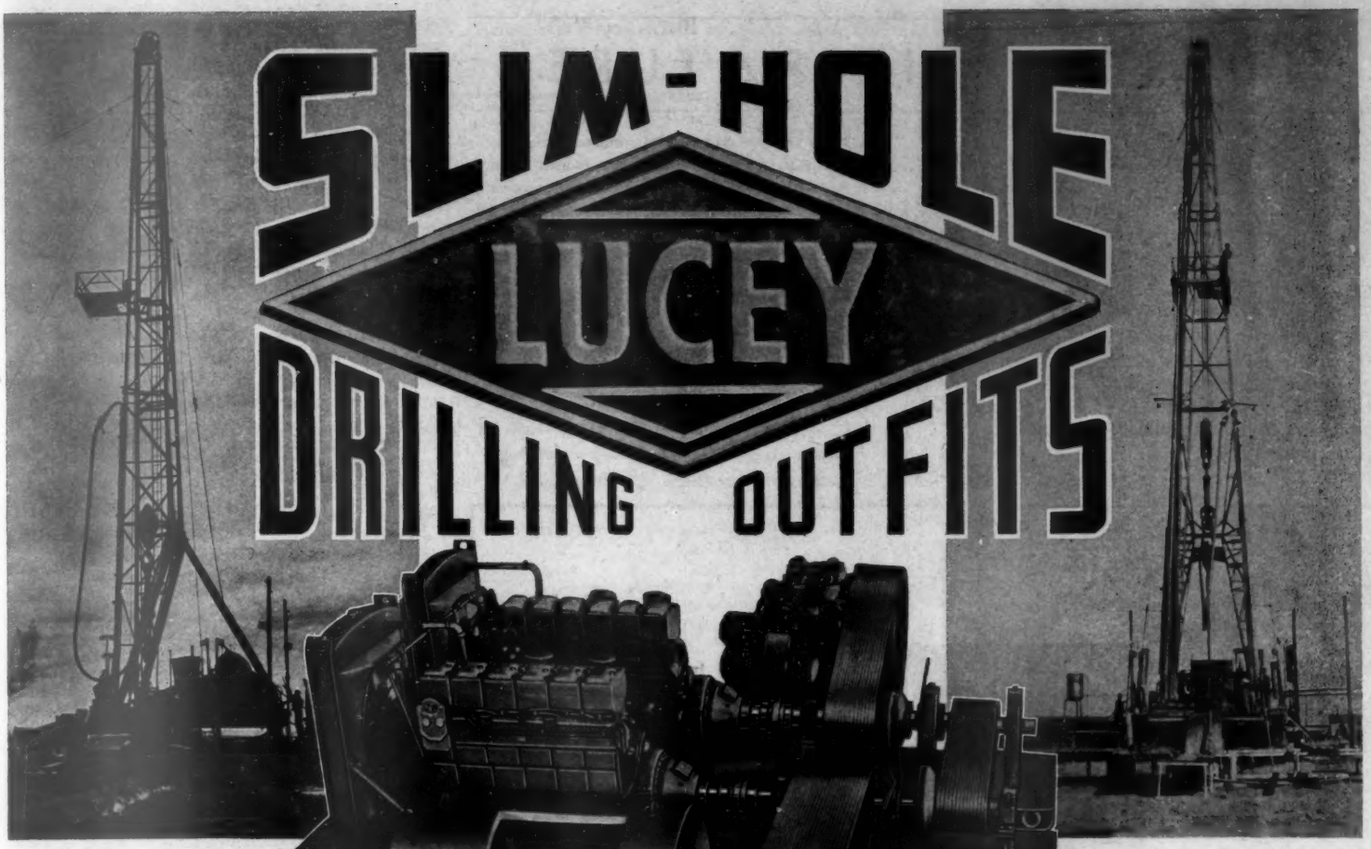
SLIM-HOLE LUCEY DRILLING OUTFITS



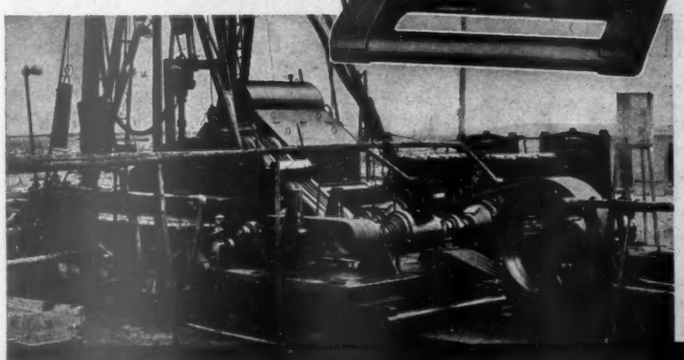
- Easy to Assemble
- Simple to Operate
- Easy to Transport

Illustrated is the type "ES" outfit. Photos show operating outfit with portable jacknife derrick.

LUCEY SLIM HOLE Drilling Outfits are built in 4 sizes and capacities:

TYPE "B"	2,000 to 3,000 ft.
TYPE "C"	3,000 to 4,000 ft.
TYPE "D"	4,000 to 5,000 ft.
TYPE "E"	5,000 to 7,000 ft.

"S" indicates Sand Reel is built in as part of Drawworks unit. (Example: Type "ES")



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Line Pipe
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Portable Outfits
Pull Rods
Pumps, Power
Pumps, Steam
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Rotaries
Sand Lines
Shale Separators
Slim Hole Outfits
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Sucker Rods
Swabs
Swivels
Tanks, Steel
Trailers
Traveling Blocks
Tubes, Boiler
Tubing
Turbo Generators
Tongs
Tool Joints
Wire Rope

CURRENT LITERATURE

—BOOKS—

OIL AND GAS FIELD DEVELOPMENT IN UNITED STATES IN 1941. By National Oil Scouts and Landmen's Association, Austin, Tex. 790 pp.

This invaluable reference book has increased in size until it now has reached 790 pages. Every producing and prospective oil area in the country is covered in detail with a wealth of data on prospecting, leasing, wildcatting, and proven-field development. Discoveries and extensions are described with production data and prominent markers in the discovery well. Production outlets and refineries and gasoline plants are listed for practically all areas.

The fact that the material collected in this yearbook is made available through major-company scouts insures its completeness and accuracy and makes it the most valuable handbook available to the industry.

OIL PROPERTY VALUATION. By Paul Paine. John Wiley & Sons, Inc., New York City. 204 pp. $2.75.

Published accounts of the valuation of oil properties have been concerned chiefly with the element of oil and gas contents of lands. Less attention has been given to those other influences which effect the value of oil and gas, to the various valuation methods appropriate to different circumstances, and to the forms in which oil properties occur. The author has attempted to close that gap, especially for the younger engineers, with a review of the meaning and scope of valuation in the oil business, the factors which enter a valuation, and the methods of applying these.

STRATEGIC MATERIALS IN HEMISPHERE DEFENSE. M. S. Hessel, Walter Murphy, and F. A. Hessel. Hastings House. New York City. 235 pp. $2.50.

This volume discusses 14 strategic and 15 critical materials on the Army's list, their sources, potential sources, their uses, and our needs. Pictograph diagrams have been used to translate the figures into visual comparisons.

PRINCIPLES OF THE DIESEL ENGINE. By L. H. Morrison. Diesel Publications, Inc., New York City. 216 pp.

In collecting data both the young man and the mature manufacturer find that printed information is often either written by those who do not understand the diesel, and so gives misleading information, or by the technical engineer who cannot talk the language of the layman. The author wrote this volume in an effort to present accurate but simple information on the diesel. It is not couched in technical language, and it can be understood by anyone. Its first chapter is devoted to an explanation of diesel terms.

—PAMPHLETS—

CRUDE OILS OF NEW MEXICO. By E. C. Lane. Bureau of Mines, Washington, D. C.

This report, which is free of charge, presents complete analyses of oil samples from fields which produced more than 90 per cent of New Mexico's petroleum in 1940, and presents tables summarizing the production for 1940 and the cumulative production for each field under investigation.

WAR CONTROLS GUIDE, and IMPORT-EXPORT CONTROL INDEX. New York Journal of Commerce, New York, N. Y. 32 pp. 25 cents each.

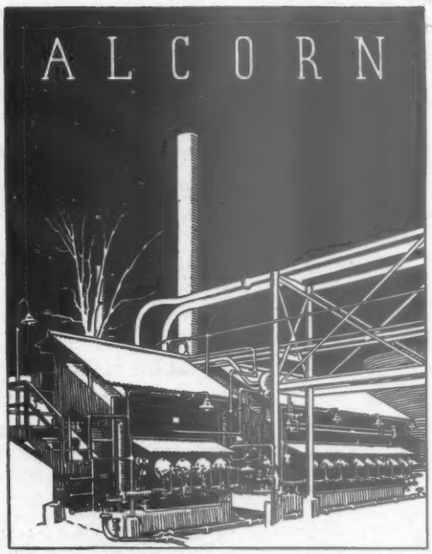
Two new war-control handbooks, one digesting all price and priority regulations now in effect and the other summarizing the controls on imports should be useful to business men. The former lists every OPA price ceiling or rationing order and every WPB "L," "M," and "P" regulation, and digests the various regulations and amendment affecting them. The latter lists all existing controls in imports and exports along with the shipping priority rating and licensing symbols assiged to the various commodities. It also includes a complete breakdown of WPB Order M-63 and an outline of the forms and information importers are required to furnish.

NEW 1942-1943 Catalog of Technical Books. Chemical Publishing Co., Brooklyn, N. Y. 64 pp.

Sections have been subdivided so that needed books can be found in a minimum time. Every important field has been covered—aviation, engineering, radio, electricity, mechanics, chemistry, formulas, military and naval sciences, and dictionaries. Copies free on request.

QUARTERLY DIGEST OF CURRENT ASPHALT LITERATURE. April and July issues. Asphalt Institute, 801 Second avenue, New York City.

Each of these digests contain 24 pages, which present a condensed resume of the principal articles on asphalt and asphalt paving appearing in the professional and trade publications.



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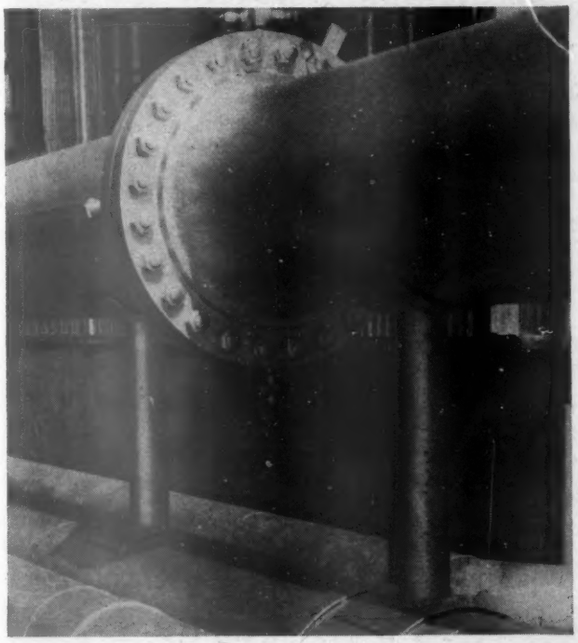
Refinery IDEAS

. . . that save $ $ $

Curved Surfaces Support Pipe

In modern plant construction, pipes of minimum wall thickness are favored for economy and for the conservation of metals. However, pipes of relatively large diameter are being installed to provide large throughput. These two factors have lately influenced the manner of supporting long runs of large pipe in a newly constructed plant. Short lengths of 4-in. pipe provide the columns



that support the pipe, and to the ends of each column are welded curved plates, large enough to provide ample contact with the pipe they support. A column is placed under each side of the flange where the two lengths are brought together, thus supporting the pipe at the point of greatest structural weakness in the assembly. Note that the lower plate is tack-welded to the support while the pipe resting on the upper plate is free to move as temperature changes tend to elongate or shorten it.

Elevated Tool Platform

An elevated tool rack is here placed on a platform 10 in. high, which enables the operator easily to select the tool he needs when a job is in progress. It is felt that the neatness of this arrangement, and the prominence given the tool rack, act as a curb against unauthorized use of the light tools, and encourages their immediate return when the workman has finished with them. The portable

work bench seen in the picture is equally interesting. It is made from scrap steel, and has rubber-tired wheels under one end, and large heavy plates under the legs of the other end. A handle is conveniently located at the wheeled end, which facilitates moving.

Overhead Track Services Compressors

In a large compressor room, in which there are two rows of engines, the problem of servicing these units has been speeded by the installation of an overhead track and traveling crane. The track was bent in the shape of two long "U's" and then joined together with a sweeping curve. The track is bolted to the cross members of the roof structure and allows the crane to be moved in front of or behind any one of the compressors or engines. Because the principal repair job is to pull the pistons on the engines, the track has been located in the position to best accommodate this type of repair. Since the engine cylinders are set at an angle off the vertical the track was not located immediately over the cylinders but in line with the angle of pull. I-beams, bent and welded together and supported by bolts from the cross members of the roof, supply the track for the crane.

CONTROLS
in the forefront of the Petro-Chemical picture

PETROLEUM'S war winning products... aviation gasoline, toluol, solvents, and butadiene, for example... are of themselves a tribute to the enterprise of America's alert refinery industries.

Precision of control... which includes exact measurement of quantity and flow... is indispensable throughout the operations.

Tracing the processes, you find meters indicated at even the very beginning of the flow sheet... time-tested instruments such as the **METRIC-AMERICAN** orifice meters here pictured.

You meet them in the refinery, where is produced the alkylate base stock which must comprise a high per cent of the finished 100-octane gasoline... or where the catalytic cracking processes are making the aviation gasoline and yielding by-products such as toluene for T.N.T. manufacture.

You see them again on the job of measuring high pressure gas... in natural gas cycling plants, where by-product butadiene and butenes are obtained as ingredients for Buna S and Butyl rubbers.

In short... sustained high accuracy is a basic requirement for meters in petrochemical operations. Ruggedness and easy maintenance likewise are essential qualities. **METRIC-AMERICAN** meters, flowmeters, and remote control equipment are strong in these inherent virtues.

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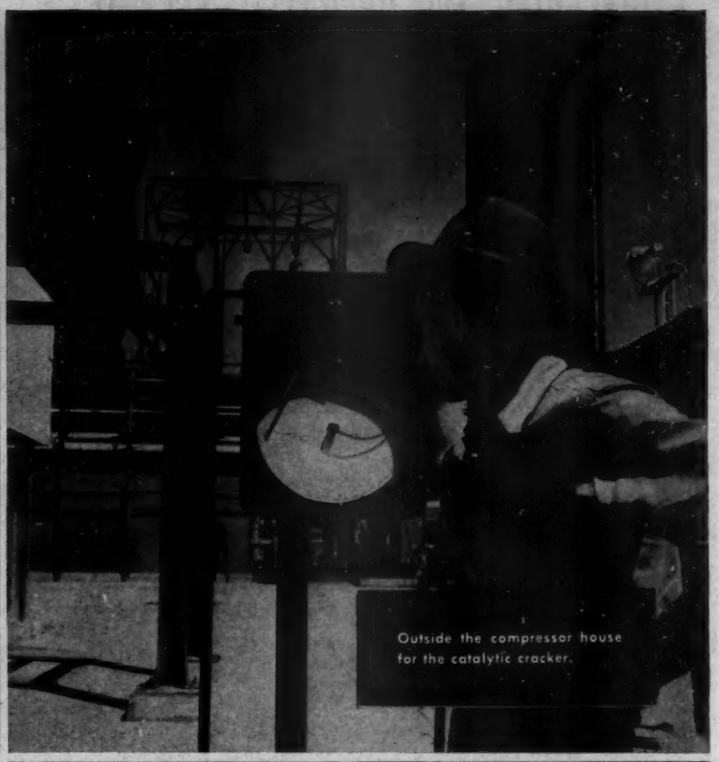
In the alkylation plant... refinery of a subsidiary of a large oil company.

Orifice meter measuring the crude as it is first introduced into the catalytic crackers.



Outside the compressor house for the catalytic cracker.

METRIC-AMERICAN orifice meters—with catalytic cracker in background.

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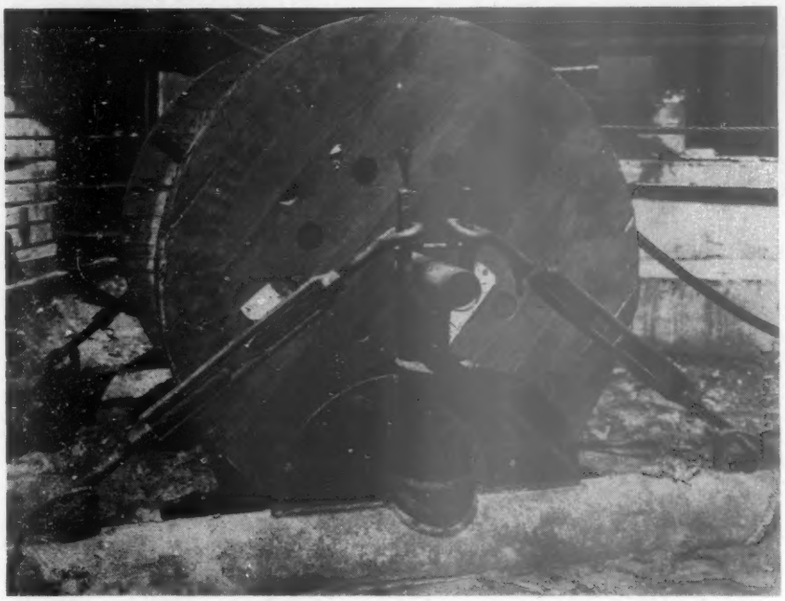
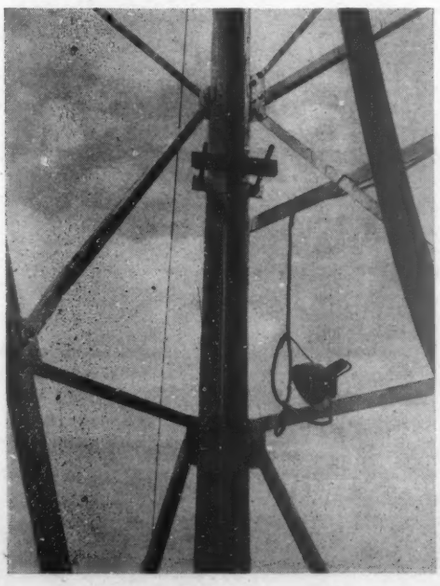


Spooling Rig For Drilling Line

Field men of one of the large oil companies operating in the Oklahoma City, Okla., area have devised a handy and adjustable spooling rig for rotary drilling line. The unit was built in a local machine shop from used metal pieces. The spool axle, a section of pipe run through the hub of the spool, is supported on each side by a yoke which is fitted into the base with a turning screw permitting raising or lowering of either side to the desired level. A spool is installed by rolling it into place in the frame with two yokes lowered to a point that the axle can be run through the yokes and the spool hub, and then elevating by means of the turn screws. To remove a spool it is only necessary to lower the yokes so the weight of the spool rests on the ground, and slip out the axle. Rocking is prevented by turnbuckles which secure each yoke to ends of the base of the frame on each side.

Clamp Secures Standpipe to Derrick Corner

A U-bolt of 1-in. bar stock, approximately 48 in. long before forming, is used by one Texas drilling contractor as mud standpipe support. The bolt is threaded on each end for about 16 in., and bent at the center to form a U measuring 12 in. The U-bolt is put around the outside of the derrick corner at the desired spot, and a plate, drilled to fit over the U-bolt, is clamped over the corner angle by means of nuts run over the threaded ends. A pair of free nuts is run up on the threads, and a pair of strap supports, formed in the center to grip the standpipe, is placed over the U-bolt. The straps are held by nuts run up after the straps are placed, the backing nuts being adjusted to permit the clamps to be pulled tightly around the standpipe. Location of backup nuts determine standpipe position.



Two-Way Mud Flume Speeds Rigging

To shorten rigging-up time and permit the mud ditch to be led in either direction from the derrick, as dictated by lease conditions, a Texas drilling contractor fits his mud flumes with dual-entry fittings, consisting of nipples, about 6 in. long, welded into opposite sides of the rectangular flume. The one to be used is fitted with a flange for the customary connection to the mud line, while a collar of the proper size, sealed with a section of plate welded into one end, is screwed onto the threads of the unused nipple. A short handle or grip of sucker rod, welded at the center of the sealing disk on the collar, and bent outward to provide hand hold, aids in running up the sealing device on the nipple, and permits it to be removed readily.

Rod Keeps Parts on Bench

To prevent small parts or tools from rolling or sliding off the work bench on a drilling rig, the crew of a Gulf Coast contractor welded a section of ½-in. round iron along the outer edge of the metal top of the bench. A short opening was left at one end of the bench to permit water to run off and simplify cleaning.

CO$T Engineering

A WEEKLY FEATURE OF THE OIL AND GAS JOURNAL

DRILLING MUD

OCTOBER 22, 1942

PROPER MIXING CUTS MUD COSTS

IT has been shown that thought should be given in purchasing drilling mud on a cost-per-barrel basis rather than a cost-per-ton basis. This, however, is not all that is required to obtain maximum yield or optimum results of the selected commercial clays. Inability to get maximum yields invariably is due to the careless manner in which the material is handled, and not to changes in the products.

After selecting the mud additive to be used in treating the drilling fluid, there are a few considerations which become standard regardless of locality or well conditions. These conditions can be enumerated as follows:

1. Type of material to be added:
   (*a*) Colloidal or bentonitic clay.
   (*b*) Weighting material.
   (*c*) Native clay.
   (*d*) Chemicals.
2. Total volume of mud to be treated:
   (*a*) Hole volume.
   (*b*) Pit volume.
3. Circulation time of both:
   (*a*) Hole.
   (*b*) Pits.

By considering each of these points the preferred mixing and treating conditions can be set out.

The type of material to be added controls the speed of addition. This is especially true when maximum yield is desired. In adding colloidal or bentonitic material greater care and longer mixing time are required. Colloidal material has an extremely high affinity for water and when added too fast tends to be wetted in larger particles or in small balls of wetted material around dry clay. When this occurs much of the material is lost to the bottom of the pits and necessitates the addition of more material than was calculated. Later, after passing through the pumps and around the circulating system several times the balled-up material is dispersed mechanically and the originally calculated yield often is obtained. Many times, because of this lag in yield, more material is added than is necessary and results in a drilling fluid having a viscosity and gel strength greater than desired. The usual procedure then is to dilute with water or to use chemical treatment. This adds to the mud costs.

If native clay or weighting material is to be added, the rate of mixing can be greatly increased. These materials, due to the absence of colloidal qualities, wet readily and the maximum yield will be obtained easily. The main consideration while adding this type of material is to be sure that the drilling fluid which is being treated has a high enough viscosity and gel strength to suspend the materials indefinitely.

Chemicals usually are added by mixing or hydrating them in water before their addition to the mud system. As a result the problem of yield is not important. However, great care should be taken not to overtreat the drilling fluid to the extent that artificial mud materials must be added later to overcome low viscosities and low gel strengths.

Assuming that the best product has been selected as the necessary mud additive, it is now the problem to get the material into the pits and hole with the maximum yield of commercial clay to the barrel of drilling mud. Because of the evident hazards involved in spotted mud treatment, the first consideration is the establishment of the mud volume to be treated and how long a time is required to make a complete cycle through the hole and pits. Knowing these factors and knowing how much material must be added from field experiments with the actual mud or from past experience, the rate of addition can be calculated.

Calculation shows that the total volume of the pits and hole is 1,000 bbl., the circulation time through the hole and pits is 2 hours, and the amount of material to be added is 120 sacks. The time required to mix this amount of material then can be determined if the characteristics of the various additives are considered.

If colloidal or bentonitic clay is added one circulation or 120 minutes is not enough to mix the material properly. In the best cone-and-jet type hopper, 3 to 5 minutes per sack of clay is required for maximum yield. It is then evident that from three to five circulations with continuous mixing will be required to obtain the best results with a minimum amount of material.

It is difficult to get crews to mix mud over such long periods. The objection is that many rigs have only one mud pump and the mud volume and pressure to the hole must be sacrificed to the mixing hopper. This of course reduces the drilling rate and in badly caving holes may allow the accumulation of caved materials in the enlarged portions of the hole.

This objection can be overcome in many ways and at very little expense. One method would be the use of a more efficient hopper which employs the use of small-size jets and less fluid volume. Another would be to use a suction-type mixer in which a connection is welded into the mud-pump suction. A rubber hose is then fitted to this connection and the rate of mixing and amount of suction controlled by a valve. Sometimes the crews sprinkle the commercial mud into the flow ditch slowly. This, however, is the most objectionable way to mix mud since the material tends to be wetted before the larger particles can be broken down. This results in low yield of commercial clay. Likewise the time required to add enough material to the system is great.

Perhaps the best way to add bentonitic material to a mud system is by having tank or pit facilities available so that a predetermined amount of bentonite can be mixed or hydrated in water and when colloidal material is desired it can be added to the circulating system quickly and accurately from the tank. Actually the cost of a small tank and pump is very little compared to the amount of rig time or drilling time that can be saved by this method. Savings on commercial mud through better yield per ton will pay for the initial cost of installation in a very short time. A 100-bbl. tank is ample, and since mixing time is not a consideration a small pump (such as would be used to pump water, etc.) is sufficient.

It is not unusual for poor mixing to result in a 20 per cent reduction in the effectiveness of the bentonitic material added. This means that instead of adding 20 sacks to reach an objective, 24 sacks are required. This is a direct monetary loss of $8.80. When 20 sacks are being mixed each 8-hour tour, the monetary saving per day begins to mount. On wells where large amounts of mud are required, the saving through proper mixing and adding to the system assume increasing importance.

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CO$T Engineering

A WEEKLY FEATURE OF THE OIL AND GAS JOURNAL — RIG OPERATION

OCTOBER 22, 1942

COST STUDY SHOWS VALUE OF DESIGNED BIT PROGRAM

THE effect of the more or less loose "bit programs" used by drilling organizations begin to show effect as soon as development of a field gets under way. The first well, almost without exception, requires more bits to drill than any of the succeeding wells. After it has been completed, there is generally a gradual reduction over a considerable period of time down to what amounts to a minimum. Frequently, wells will be drilled during the later life of the field with one-half the number of bits required during the early stages.

The principal problem facing drilling organizations is the reduction of the number of bits required per well from the very start of the drilling campaign and the attainment of the ultimate minimum as rapidly as possible. In this regard, the possibilities from a directed program are overlooked in numerous cases.

One large organization recently undertook some experimentation on a rig which it was operating in the Gulf Coast region where the wells were approximately 8,000 ft. deep. The object was to develop by experiment a satisfactory bit program which would show a minimum outlay for bits and for rig time. Such a program must be evaluated in rig time and wear as well as bit costs. The information obtained on bit costs is summarized in Table 1.

TABLE 1

Well No.	Bits used	Rate of penetration	Bit costs	Bit cost per trip
1	25	15.7	$2,160	$86.4
2	15	19.0	1,380	92.0
3	19	21.6	1,542	81.1

It will be seen that the average bit cost, as reflected by the bit cost per trip, was least for the third well and that it differed for each of the wells. This was due to changing the number of the various types of bits used in drilling each of the three wells. It is obvious that the bit program paid dividends from the start as both the number of bits and number of trips were reduced, and an increased rate of penetration was achieved. The program is being continued in hopes of obtaining still further reductions.

Normally there is some disposition to consider only the cost of the bits involved rather than include the expense incurred in changing bits. Another factor which is frequently overlooked is the danger of a fishing job, from using equipment unsuited to the job. The effort to cut bit costs through a haphazard use of materials having a smaller original expense can often lead to considerable trouble which more than robs the operator of the drilling rig of any potential profit. The better program is to put one's dependence in products of assured quality and this is particularly true of bits, regardless of type.

For comparing the over-all cost of the various bit programs, it is necessary to charge the cost of the necessary trips. The wells were all drilled in the same area to approximately the same depth and a cost-per-trip factor may be assumed which is fair to all of them. This is placed at $50 per trip although it would probably be slightly less than that for well No. 2 and a little more for the other wells. The comparison including the trip cost is shown in Table 2.

TABLE 2

Well No.	Bit cost	Trip cost	Total cost
1	$2,160	$1,250	$3,410
2	1,380	750	2,130
3	1,542	950	2,492

This comparison shows an advantage for the program used on the second well. However, it does not include any factor for the rate of penetration. The latter item is of key importance as there is nothing gained by skimping on bits if the rig time is increased and the cost for rig operation mounts. In both the Nos. 2 and 3 wells the rig time was reduced so the comparison in this case shows which of these two is the most economical at the same time emphasizes the importance of a bit program by demonstrating the savings in the cost of the latter two wells over the first hole drilled. This is shown in Table 3.

TABLE 3

Well No.	Rate of penetration	Rig cost per hr.	Rig cost per ft.	Rig cost per well (8,000 ft.)
1	15.7	$15	$0.95	$7,600
2	19.0	15	.79	6,320
3	21.6	15	.69	5,520

It is seen that the third well showed approximately $800 less charge for rig time than the second well and $1,080 less than the first well. Combining the costs in Table 4 gives a comparison of the over-all cost for the various bit programs attempted in this field.

TABLE 4

Well No.	Bit cost	Trip cost	Rig cost drilling	Total cost	Cost per ft.
1	$2.160	$1,205	$7,600	$11,010	$1.37
2	1,380	750	6,320	8,450	1.05
3	1,542	950	5,520	8,012	1.00

The program used on the third well resulted in the saving of $438 over the second well and a saving of almost $3,000 over the first well. While the reduction in cost from the first to the second well is more outstanding, the reduction from the second to the third well is far from inconsequential as it amounts to $0.054 per foot.

Further reduction in the cost of drilling the well may be obtained by combining the best features of the bit programs used on the second and third wells. It is possible that a further small increase in the rate of penetration may be effected and at the same time the number of trips reduced. Ultimately, the cost per foot may reach 10 or 15 cents per foot under the cost as shown for well No. 3 in Table 4.

It should be kept in mind that the costs as shown here are the operating costs per foot and that they do not reflect the total cost per foot of drilling the well.

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Engineering Fundamentals

A WEEKLY FEATURE OF THE OIL AND GAS JOURNAL No. 45

OCTOBER 22, 1942

FINDING MEAN EFFECTIVE PRESSURE

FOR finely accurate results a planimeter should be used in the determination of mean effective pressure. The average ordinate method, however, is simpler and may be used when a planimeter is not available.

In applying the average ordinate method, the length of the indicator diagram is divided into 10 equal divisions and perpendiculars to the atmospheric pressure line are drawn at the middle point of each division. A convenient way of erecting the ten perpendiculars is illustrated in Example 1. The lines *AB* and *CD* are drawn perpendicular to the atmospheric line at each end of the diagram. A ruler is then laid on the diagram with the zero mark on the line *AB* and the 5-in. mark on the line *CD*. A dot is then made on the diagram at each ¼-in. and ¾-in. division of the ruler. Then, the perpendiculars are erected through each dot.

The average length of the perpendiculars, in inches, multiplied by the scale of the spring* used on the indicator will give the mean effective pressure.

If the inlet steam valve is closed too soon in the power stroke, the steam may expand to a pressure below exhaust pressure. This is termed overexpansion and is represented by the diagram illustrated in Example 2. In computing the mean effective pressure, that part of the diagram where the expansion line falls below the exhaust line must be considered as representing negative work, and the sum of the lengths of the perpendiculars for this part of the card subtracted from the sum of the perpendiculars on the remainder of the card. This difference is then divided by 10 and the quotient multiplied by the spring scale to obtain mean effective pressure.

Example 1.

Problem.—The indicator diagram shown in the sketch was taken on a steam engine. A 50-lb. spring was used on the indicator. Determine the mean effective pressure by the average ordinate method.

Solution.—First, draw lines *AB* and *CD* perpendicular to the atmospheric line.

Now, place dots diagonally across diagram using a ruler as described earlier in this discussion. Erect the perpendiculars *ab, cd, ef, gh, ij, kl, mn, op, qr,* and *st,* through the dots.

Measured lengths of the perpendiculars, in inches are: *ab* = 1.88, *cd* = 2.06, *ef* = 2.06, *gh* = 1.83, *ij* = 1.38, *kl* = 1.08, *mn* = 0.84, *op* = 0.68, *qr* = 0.55, *st* = 0.39.

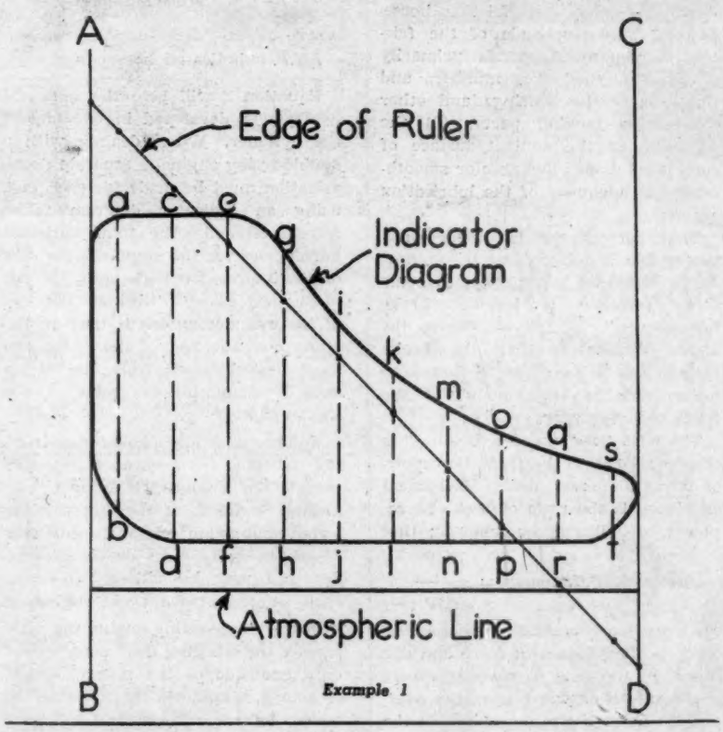
The sum of these lengths is 12.75 in. Dividing by 10, the average is 1.275 in. Multiplying by the spring scale, 50 × 1.275, or 63.75 lb. per sq. in. is the mean effective pressure.

Example 2.

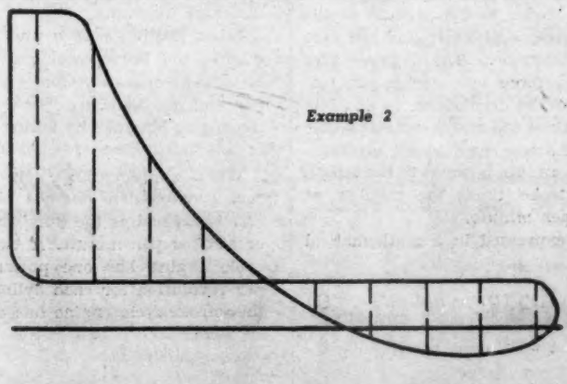
Problem.—Determine the mean effective pressure from the indicator diagram. The spring scale is 80.

Solution.—Erect perpendiculars as shown. Measured lengths in inches of the perpendiculars, from left to right, are: 1.71, 1.50, 0.80, 0.37, 0.03, —0.20, —0.36, —0.47, —0.48, —0.37. The algebraic sum of these heights is 2.53 in. The mean effective pressure, then, is

$$\frac{2.57}{10} \times 80 = 20.56 \text{ lb. per sq. in.}$$



Example 1



Example 2

*See Installment 44 for a definition of spring scale.

Series prepared by Glenn M. Stearns, associate professor of petroleum engineering, University of Oklahoma

Engineering Fundamentals

A WEEKLY FEATURE OF THE OIL AND GAS JOURNAL No. 46

OCTOBER 22, 1942

INDICATED ENGINE HORSEPOWER

THE term "indicated horsepower" as applied to reciprocating engines refers to the horsepower actually developed within the engine cylinder. Since some of the power developed in an engine cylinder must be used in overcoming the frictional resistance of moving parts (bearings, crosshead, etc.) all of the indicated horsepower cannot be utilized for doing useful work.

That part of the indicated horsepower that is lost within the engine itself is termed the "friction horsepower." The magnitude of the friction horsepower depends primarily upon: (1) the size, number, and tightness of the bearings and other close-fitting moving parts; (2) the condition of the contact surface of such parts as to roughness or smoothness; (3) adequacy of the lubrication system.

That part of the indicated horsepower that is delivered by the engine, at its shaft or belt pulley, to some other machine is termed "brake horsepower." It follows, from the above discussion, that the brake horsepower is less than the indicated horsepower by the amount of the friction horsepower.

The term "mechanical efficiency" is closely related to the three horsepower terms discussed above. Mechanical efficiency is the ratio of brake horsepower to indicated horsepower; that is, mechanical efficiency $= \frac{\text{BHP}}{\text{IHP}}$.

As previously defined in this series, work is the product of force and distance. In the case of steam pressure operating an engine piston, the average net force of the steam against the piston is equal to the product of the mean effective pressure and the area of the piston face. The distance over which the force acts, during one revolution of the crankshaft, is equal to the length of the stroke of the piston; or the distance over which the force acts in 1 minute is equal to the length of the stroke times the number of strokes per minute.

Then, expressed in a mathematical equation,

$$W = (F)\,(D) = P_m LAN \qquad (1)$$

where

W = net work done per minute, ft.-lb.
P_m = mean effective pressure, lb. per sq. in.
A = area of piston face, sq. in.
$F = P_m A$ = average net force against piston, lb.
L = length of stroke of piston, lb.
N = speed of crankshaft, revolutions per minute.
D = total distance through which average net force acts in 1 minute.

and, since 1 hp. represents the performance of 33,000 ft.-lb. of work per minute,

$$I.H.P. = \frac{FD}{33{,}000} = \frac{P_m LAN}{33{,}000} \qquad (2)$$

where

$I.H.P.$ = indicated horsepower.

Equation 2 will give the indicated horsepower developed in one end of the cylinder. When dealing with a double-acting engine, a separate determination must be made for each end, using an indicator diagram taken from each end. The total indicated horsepower for the engine is the sum of the power for both ends. If the piston rod extends through the end of the cylinder, which is true on the crank end, the area of the piston rod must be subtracted from the piston area in calculating the value, A, for Equation 2.

Equation 2 is applicable for calculating indicated horsepower of internal-combustion engines, if proper cognizance is taken of the fact that internal-combustion engines are single-acting, in many cases are multicylinder and may be either two-stroke cycle or four-stroke cycle engines.

In the single-acting engine the pressure of the working fluid acts against only one side of the piston, which, of course, eliminates the necessity of taking both crank-end and head-end indicator diagrams.

When dealing with a multicylinder engine, the horsepower must be determined separately for each cylinder and the indicated horsepower of the engine obtained by taking the sum of the horsepower for all cylinders.

When applying Equation 2 to internal-combustion engines the term (N) is defined as the number of power strokes per minute. A two-stroke-cycle engine has one power stroke per revolution for each cylinder. The four-stroke-cycle engine has one power stroke every two revolutions for each cylinder.

Example 1.

Problem.—The following data is from a test of a double-acting, single-cylinder steam engine:

Stroke	12 in.
Piston diameter	10 in.
Speed	125 r.p.m.
Piston-rod diameter	2 in.
Mean effective pressure, head end	55 lb. per sq. in.
Mean effective pressure, crank end	49 lb. per sq. in.

Calculate the indicated horsepower of the engine.

Solution:

For the head end,

$$A = \frac{\pi\,(10)^2}{4} = 78.54 \text{ sq. in.}$$

$L = 1$ ft.

and, from Equation 2,

$$\text{I.H.P.} = \frac{(55)\,(1)\,(78.54)\,(125)}{33{,}000} = 16.36$$

For the crank end,

$$A = \frac{\pi\,(10)^2}{4} - \frac{\pi\,(2)^2}{4} = 75.40 \text{ sq. in.}$$

and, applying Equation 2,

$$\text{I.H.P.} = \frac{(49)\,(1)\,(75.40)\,(125)}{33{,}000} = 13.99$$

Then the indicated horsepower of the engine is 16.36 + 13.99, or 30.35.

Example 2.

Problem.—The following data is taken from a test of a high-speed, six-cylinder, compression ignition, four-stroke cycle engine:

Stroke	6 in.
Bore	4 in.
Speed	1,422 r.p.m.
Mean effective pressure (average for the six cylinders)	101 lb. per sq. in.

Calculate the indicated horsepower of the engine.

Solution.—For one cylinder: $P_m = 101$, $L = 6/12 = 0.5$, $A = \frac{1}{4}(\pi)(4)^2 = 12.56$ sq. in., $N = 1{,}422/2 = 711$.

Then, for one cylinder,

$$\text{I.H.P.} = \frac{(101)\,(0.5)\,(12.56)\,(711)}{33{,}000} = 13.66$$

Or, for the engine,

$$\text{I.H.P.} = 6 \times 13.66 = 81.96.$$

Series prepared by Glenn M. Stearns, associate professor of petroleum engineering, University of Oklahoma

REFINERY ACTIVITY AND EXPANSION

Sharper Adjustment of Refinery Gasoline Yields May Be Necessary to Offset Delay

REFINERS have not responded completely to recommendations of the Petroleum Industry War Council's committee on economics. Failure of gasoline yields to decline along recommended levels may be owing to a desire on the part of all distributors to fortify their stock positions before application of rationing or more severe regulation of the transportation facilities interferes with deliveries.

The Bureau of Mines monthly petroleum statement for August, issued at Washington last week, reflects a trend in refinery operations almost diametrically opposed to recommendations of the PIWC committee on economics. The yield of gasoline in August on all crude charged to domestic refineries was 39 per cent compared to 38.6 per cent in July and 37.8 per cent in June. July and August operations reversed a trend in gasoline yields that had prevailed in domestic refinery operations since the start of the year.

The economics committee report adopted at the October meeting of the PIWC proposes a program for the last quarter of this year and the first of next of reducing gasoline yields to 36.1 per cent and increasing kerosene and distillate output to 24.4 per cent and holding residual fuel-oil manufacture to 25.3 per cent.

Daily average crude runs to stills in August reached 3,682,000 bbl. which is the highest since February but considerably below the average of 4,018,000 bbl. for August 1941. The total demand for motor fuel in August, the bureau reported, was about 51,600,000 bbl., or 21 per cent below a year ago. This substantial reduction, the bureau explained, reflects the full effect of rationing in District 1, voluntary curtailment of driving in other parts of the country and withdrawals from unreported accumulations in stocks.

The trend in stocks of motor fuel in August nearly reached the turning point and the nearly static position of gasoline inventory reflected by weekly reports of the American Petroleum Institute through September and the first half of October may indicate that refiners have made substantial adjustments in their yields.

PERCENTAGE GASOLINE YIELD FROM CRUDE

	August 1942	July 1942	August 1941
East Coast			36.9
Texas Gulf			44.3
Texas Inland	38.2	37.7	55.1
Louisiana Gulf			37.4
Arkansas-N. Louisiana			41.6
Appalachian	40.4	40.5	47.6
Ind., Ill., Ky.	45.0	45.5	52.0
Okla., Kans., Mo.	45.7	45.7	53.2
Rocky Mountains	46.1	44.1	53.5
California	29.7	27.2	32.8
National average	39.0	38.6	44.0

Operations of the refining branch of the industry during the first 2 months of the third quar-

Sketches of Plant Operators . . .

E. H. BENDER, superintendent of the Borger, Tex., refinery of Phillips Petroleum Co., since June 1941, is actually back home for it was at this plant that he started his career with the company in the manufacturing branch of the petroleum industry.

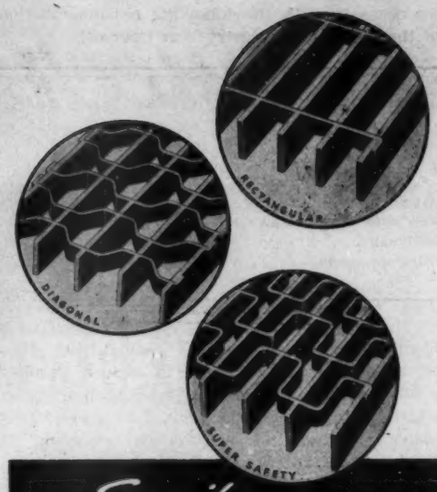
The Borger plant superintendent was born in St. Louis, Mo., where he attained public school education and in 1920 he was graduated as a chemical engineer from Washington University.

Before being employed by Phillips Petroleum Co., in 1930, Mr. Bender was employed for 10 years in the petroleum and chemical industries, 2 years in Illinois and 8 years in California.

Mr. Bender's early days with Phillips were spent at Borger in the first pilot plant research project on the Youker thermal polymerization of liquefied gas and poly-reversion development. Later, he served as chief chemist, night superintendent and manufacturing superintendent.

He was transferred to Bartlesville, Okla., headquarters of the Phillips company January 1, 1939, where he became assistant to the manager of the refining department. Return to Borger as superintendent of the large plant there became effective June 1, 1941.

The Borger refinery is one of the most complete manufacturing units in the Southwest and contains some of the more modern facilities for the production of aviation gasoline, synthetic-rubber components and other complex derivatives of petroleum.



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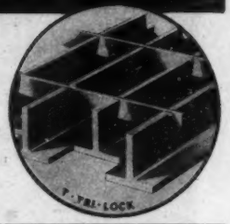

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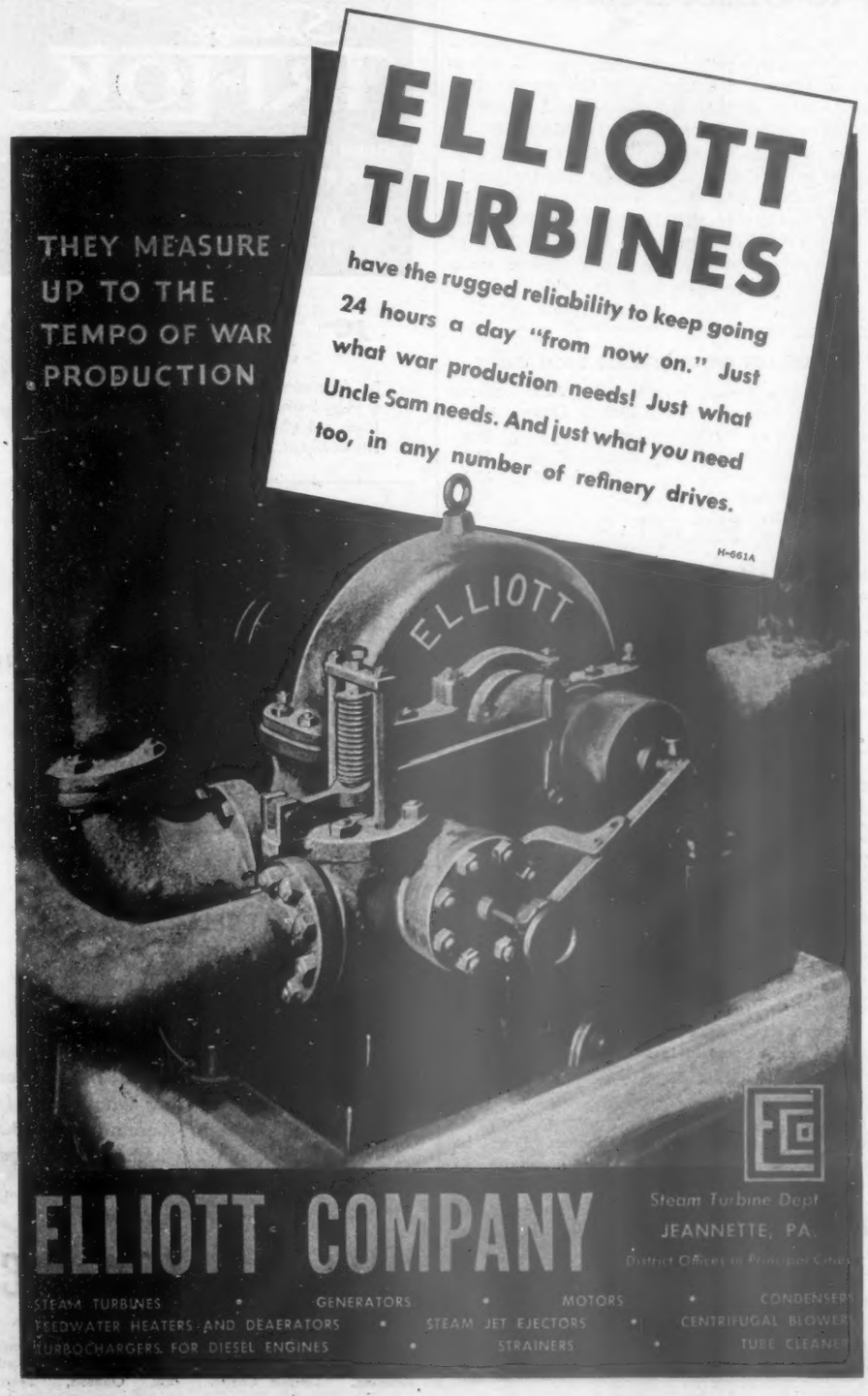
ter compare with the following recommendation of the Petroleum Industry War Council:

	Year ago Oct. 1941-Mar. 1942	Per cent of runs to stills: 4 weeks ending Sept. 19, 1942	Preliminary program Oct.-1942-Mar. 1943	Required to balance Oct. 1942-Mar. 1943
Gasoline	45.3	41.4	36.1	35.2
Kerosene and distillate	20.3	21.6	24.4	23.2
Residual	21.7	22.1	25.3	27.2
Other products	12.7	14.9	14.2	14.4

"These figures show clearly," the PIWC economics committee reported, "that further drastic changes must be made to reduce gasoline yields so as to not exceed the gasoline outlet which will be available this fall and winter under conditions of nation-wide rationing. If current yields were continued," the committee pointed out, referring to the operations prevailing in the 4 weeks ending September 19, "and crude runs maintained through the coming winter, gasoline would be overproduced in the four districts (1, 2, 3 and 4) by almost 200,000 bbl. daily, and since District 4 is in balance, the accumulation would occur in Districts 1, 2 and 3. This overproduction in gasoline would result in correspondingly reduced supplies of distillate and residual fuel oils, even if storage capacity existed for all of the excess gasoline."

The third column in the PIWC table shows the estimates of minimum gasoline yields upon which the figures in the subcommittee's forecast for individual districts is based. A comparison of the preliminary yields with those indicated as necessary for the four districts shows that they are not adequate to quite balance the situation.

"There is no escape," said the report, "from the immediate necessity for a radical increase in fuel-oil yields at the expense of gasoline."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Six Technical Consultants Added to Jeffers' Rubber Staff

WASHINGTON, D. C.—Appointment of a staff of six technical consultants on the nation's rubber program was announced last week by Rubber Director William M. Jeffers. They will serve under Col. Bradley Dewey, deputy director, upon whom Mr. Jeffers has placed responsibility for the technical aspects of the program.

Those named are:

E. B. Babcock, Akron, Ohio, chief chemist for the Firestone Tire & Rubber Co. Mr. Babcock has been active in the development of synthetic rubber for a number of years and is familiar with European developments as well as those in this country.

L. D. Tompkins, Wilton, Conn., is vice president of the U. S. Rubber Co. He formerly was in charge of the development, production and sale of tires for his company. Mr. Tompkins was an assistant to the late Gen. Hugh S. Johnson in NRA and to Gen. W. S. Knudsen in OPM.

Dr. E. R. Gilliland, Cambridge, Mass., is professor of chemical engineering at Massachusetts Institute of Technology. He is a coauthor of the standard textbook on chemical engineering and has done considerable consulting work on petroleum technology, specializing in problems of refinery conversion and purification of raw materials for the manufacture of synthetics.

W. L. Campbell, New York, formerly was vice president of Kroger Grocery Co. in charge of manufacturing and plants. He has been actively engaged in war work as vice president of the American Machine Defense Corp. and as consultant to the Army Quartermaster Corps.

Morehead Patterson, New York, is president of the American Machine Foundry Co. In addition to experience in organizational problems, Mr. Patterson is thoroughly conversant with the production and use of high-speed machinery.

Ray P. Dinsmore, Akron, Ohio, is manager of development for Goodyear Tire & Rubber Co. Ht is in charge of all research for the company, in both crude and synthetic rubber, and for several years before the war was in close touch with German synthetic-rubber development. Mr. Dinsmore is the author of numerous scientific papers on synthetic rubber.

Curb on Use of Asphalt and Road Oils Extended by OPC

WASHINGTON, D. C.—The use of asphalt, tar, and road oils in highway and road construction is curtailed throughout the country in an amendment to Recommendation 45 issued last week by the Office of Petroleum Coordinator.

The original Recommendation 45 applied only to OPC Districts 1, 2 and 3 but as reissued it makes the curtailment applicable to the entire country. The amendment has been certified to the Department of Justice by the chairman of the War Production Board.

THIS OLD TIRE *will make* 8 GAS MASKS

You CAN DO YOUR PART BY SALVAGING YOUR SCRAP

If the Axis powers decide it is to their advantage to use gas in this war, no humanitarian motives will deter them. To save our fighting men, and civilians too, from the horrors of being unprepared in such an eventuality, millions of masks *must* be available.

To this end our government is asking us to turn in *all* our scrap rubber so that it may be used in making vital war products.

One old tire from a plant vehicle or from your personal car will make eight gas masks, or eighteen pairs of boots for parachute troops—only two of the many articles of war we must have *now*.

The war will not wait. Assign someone whose duty it is to locate your scrap rubber and turn it in *now* to work for victory.

TURN IN YOUR SCRAP TO WIN THE SCRAP!

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Pipe-Line Activity

W.E.P. 24-In. Project Has Laid More Than 300 Miles

The 300-mile mark was passed at the beginning of this week in the construction of War Emergency Pipelines, Inc.'s 550-mile system connecting East Texas with southern Illinois. The principal part of the project is the 530-mile 24-in. trunk line. Smaller pipe for laterals has not yet come from the mills. At the end of last week mills had shipped 457 miles of 24-in.

Section 8, consisting of 24 miles of 24-in. terminating at Norris City, Ill., has been completed by Sheehan Pipe Line Construction Co.

Last week, weather conditions were fairly good but progress was slowed down somewhat in areas where the line traverses rocky terrain. An average of 5.2 miles was completed daily last week. The best record made so far was 8.93 miles per day.

To be fully effective for serving East Coast areas the line should be extended from Norris City, Ill., to New York and Philadelphia refining centers. Negotiations are in progress for completion of the entire Texas-East Coast project by the middle of 1943.

A factor contributing to reduced mileage for the project last week was the moving of equipment and crews by Sheehan Pipe Line Construction Co. to Dale, Ill., on Section 7, contracted by Ray L. Smith Construction Co., which is working in rough country. From now on both the Sheehan and Smith spreads will work on Section 7. Similar arrangements are reported to have been made for Oklahoma Contracting Co. to put a section spread on the section contracted by Anderson Brothers extending south from Sweet Home near Little Rock, Ark.

Texas Pipe Line Lays Lines From Louisiana Fields

Texas Pipe Line Co. has work under way for the construction of a combination 8-in. and 10-in. crude-oil line from the Erath field, Vermilion Parish, Louisiana, to the company's refinery at Port Arthur, Tex. Preparations have been made for an extension eastward from the Erath field to the Paradis field, St. Charles Parish, Louisiana. The line will follow the general course of the intracoastal canal. It will have a daily capacity of 25,000 bbl. The company's program calls for using this line to handle products from a recycling plant in the Erath field. Second-hand pipe is being used for the construction of the line.

The purpose of the line is to increase movement of Louisiana crude which has been curtailed by shortage of barges.

Great Lakes Relocates Booster Pump Stations

The Great Lakes Pipe Line Co. has been granted a "high priority" rating for materials needed to install seven relocated booster pump stations to increase the flow of refined petroleum products on its lines between Kansas City, Mo., and Minneapolis, Minn.

Installation of the stations increase the capacity of the lines as follows: between Kansas City and Osceola, Iowa, from 61,000 to 72,000 bbl. daily; between Osceola and Des Moines, Iowa, from 61,000 to 62,000, and from Des Moines to Minneapolis, Minn., from 26,500 to 32,000.

The stations scheduled for dismantling are idle ones on the company's lines between Barnsdall, Okla., and Kansas City, and between Iowa City and Chicago, Ill.

Plans call for removing electric centrifugal pumping equipment from booster stations at Copan, Okla., Selma, Kans., and Bonita, Kans.

The priority rating was granted by the War Production Board on recommendation of the Office of Petroleum Coordinator.

West Texas System Will Furnish Pipe for Plantation Extension

Bids have been received at Greensboro, N. C., for taking up 254 miles of 8-in. pipe, some of which is to be used for extending the Plantation Pipe Line Co. system from Greensboro northward to Richmond, Va. It is reported that pipe will be furnished from a system which has been operated by Illinois Pipe Line Co. in the Del Rio area of West Texas. This week bids are being received for the construction of the line which will deliver 30,000 bbl. of products daily to the Potomac area. It is anticipated that laying of the line will start as soon as shipments of pipe are received.

The work of taking up the line cannot start until contract has been approved by Defense Plant Corp., which is financing the project.

Texas Pipe Line Completes Dallas-Coalgate Project

The looping program of Texas Pipe Line Co.'s system between Dallas, Tex., and Coalgate, Okla., was completed last week.

The project called for laying 110 miles of 8-in. and 10-in., contracted by W. G. (Bill) Hanrahan and N. A. Saigh Co.

The new pressure-welding process which eliminates the use of welding rods and skilled welders was used on both Texas and Oklahoma sections of the line in the laying of the 8-in. pipe. Conventional welding of the manual type was adopted for welding 10-in. because pressure-welding equipment was not available for pipe of this diameter.

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Although the job is referred to as a looping project, it is actually a matter of filling the gaps between existing loops so as to provide the company with two continuous lines between Dallas. Tex., and Stuart, Okla.

Cushing-Barnsdall, Okla., Line Is Being Laid

Pipe is being removed from Tide Water Associated Oil Co.'s line between Seminole and Drumright, Okla., and is being shipped for re-laying in the products line which is being built as a co-operative enterprise to move products from the Tide Water, Deep Rock, Cushing, and Johnson refineries at Cushing, Drumright, and Cleveland, Okla., to the Barnsdall pump station of Great Lakes Pipe Line Co. Taking up of pipe and construction of the line has been contracted by A. C. Holder Construction Co.

Panhandle Eastern Gets FPC Permit for New Line

Panhandle Eastern Pipe Line Co., Kansas City, Mo., received a limited permit from the Federal Power Commission to construct a 16-in. pipe line about 17 miles long from a point on the 22-in. main line of the company's wholly owned subsidiary, Michigan Gas Transmission Corp., in Lucas County, Ohio, to the 16-in. line of the Ohio Fuel Gas Co., near Toledo, Ohio.

Dunigan Tool Seeks Permit To Remove Somerset Line

Permission to remove approximately 15 miles of 4-in. pipe line extending from the Grayburg tank farm 1 mile south of Somerset, Tex., to a refinery at San Antonio, Tex., was requested at a Railroad Commission hearing last week at Austin, Tex., by Dunigan Tool & Supply Co.

Alexander Boynton, operator of about 44 wells in the Somerset field, who last month offered some 450 bbl. of oil to be run through the line to the refinery, opposed the request.

Testimony showed that Dunigan Tool & Supply has purchased the pipe line from Grayburg together with 229 wells. Pipe from the wells will be used for salvage purposes since production has declined to a point below further economical operation, and the pipe line would be removed to supply vitally needed feeder lines for the Plantation products line to the East Coast.

R. D. Brown, Jr., appearing for Grayburg Pipe Line and Grayburg Oil Co., said the line is an economic failure, and has been so for many months. All efforts to operate the Grayburg Oil Co.'s 229 wells on an economic basis, likewise has failed, he said. At best, they will produce only 1 to 1.5 bbl. daily, regardless of whether they are pumped 1 or 2 hours or day and night Average daily production from those wells is 118 bbl., he said. Thus, in addition to the oil from Boynton's leases, the only oil run through the line is that produced from the Grayburg wells.

Mr. Boynton insisted that removal of the line would take away his market, but he agreed that with some 200 or 300 ft. of pipe he could tie into the Texas Petroleum Co.'s line that leads to the Pioneer refinery. He was not sure, however, whether Pioneer would offer him a market for his oil.

Gas Deliveries Assured By New Ark-La Line

The construction of a new 18-in. natural-gas main line from the McKamie, Magnolia, Lewisville and Dorcheat pools of southern Arkansas by the Arkansas Louisiana Gas Co. assures Little Rock and Central Arkansas towns and cities as well as nearby defense projects, of an adequate gas supply.

Panhandle Eastern's Rate Slash Date Is Reset

The Federal Power Commission Friday announced an order extending from October 15 to November 10 the time within which Panhandle Eastern Pipe Line Co. and its affiliates, Illinois Natural Gas Co. and Michigan Gas Transmission Corp., must file new schedules of rates and charges to reflect a reduction in the companies' wholesale rates by not less than $5,094,384 a year.

Airplane Patrol of Gas Line Proves to Be Practicable

Pioneering experience of a major oil pipe-line organization employing airplanes for patrolling influenced a large natural-gas company to adopt the same technique. After the gas company started with two planes it soon found that one would be sufficient. Leaks could be located more effectively from the air than from the ground. For accomplishing a desired end at a minimum cost, airplane patrolling proved to be justifiable.

By using poles paralleling the line marked with numbers, together with observations regarding the position of the nearest milepost, leaks were reported so that they could be readily located by the ground crew after a message dropped from the plane at a compressor station had been transmitted over the company's communication system.

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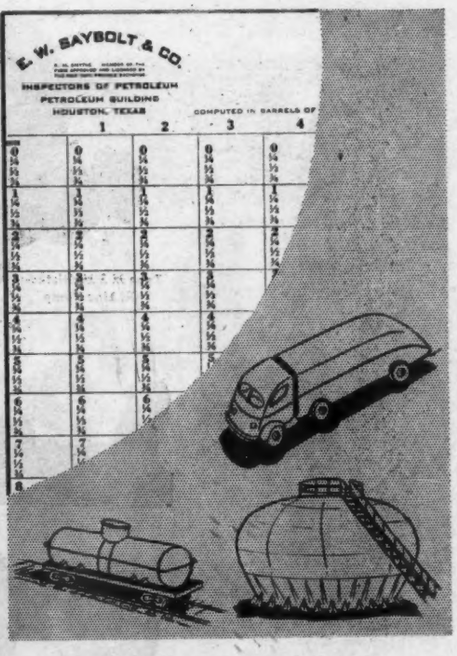

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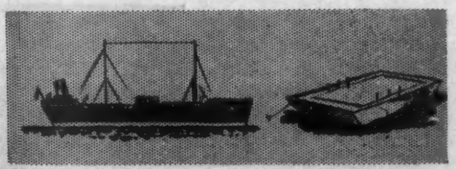

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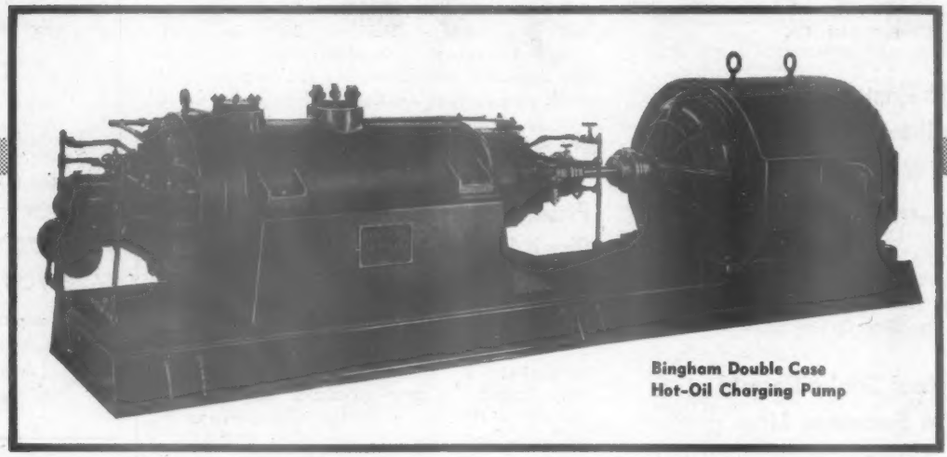

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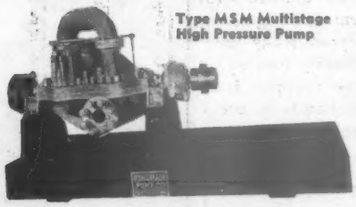
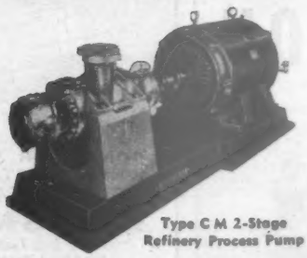
Hot-Oil Charging Pump

Type M S Multistage
Oil Line Pump



Type M S M Multistage
High Pressure Pump



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FIELD DEVELOPMENTS...

HIGHLIGHTS FROM THE WEEK'S NEWS—

One of the difficulties oil men face in trying to get an idea across to legislative or executive branches of the Government is the fact that these governmental agencies are attempting to learn in a few days lessons that the oil industry has been years in learning. They can therefore assimilate but one line of argument at a time. A review of testimony before the O'Mahoney committee would make it appear that the main justification for an increase in prices today is the need for discoveries. That there is such a need, particularly in the fields east of the Mississippi and in the northern Mid-Continent area, is apparent. Refineries will take every barrel of oil that can be produced from that region, except Kansas, where production is limited by transportation facilities.

There is a possibility that prospecting might be stimulated as much by a removal of the provisions of M-68 for offsets to a discovery. Every wildcatter counts on drilling more dry holes than discovery wells. A part of the loss on the dry holes is made up by the discovery well but, assuming that the discovery was drilled on a 40-acre lease, more can be made up from the three offsets to the discovery that could be drilled under normal procedure in those areas where there is now a shortage of oil.

But price affects more than prospecting. An increase of 25 cents a barrel will pay for a discovery faster than the present price. That is obvious. But the area in which the present shortage exists has another problem. Considering only those states in which there is flush production, the average daily production per well in Michigan is 17.57 bbl. in Illinois it is 13.76 bbl., in Oklahoma 7.36 bbl. and in Kansas 11.25 bbl. In the three states first named, there are many wells making over 100 bbl. daily, which means that there are a great many producing less than 2 bbl.

Stripper production, amounting to approximately 10 per cent of the nation's output, is in grave danger today and if the stripper operators cash in on the salvage value of their equipment, it would throw a burden of 400,000 bbl. daily on the other fields. This means that these fields would have to increase their production above the level of sound recovery practice. This might be overlooked in wartime but production from these fields would have to be stepped up above the limit of existing transportation facilities since those areas which could increase production are the very ones which cannot ship present allowables.

Thus, price considerations affect the small producer even more than the prospector. The latter, if he is lucky, can produce enough oil from his discovery to pay out. If he stopped prospecting, we should be exactly where we stand for a short time at least. If the stripper stops his operations production would fall far below present demand and the dislocation of the nation's transportation system would necessitate new construction which would far exceed this year's activity.

OKLAHOMA: A new pool opener in western Okfuskee County has been shut in until pipe-line connections can be made. It was flowing at the rate of 100 bbl. an hour before being shut in. A test south of Ardmore is flowing 35 bbl. of oil an hour from the Springer sand and discoveries are also reported in Stephens and Coal counties (p. 91).

SOUTHWEST TEXAS: A deep Wilcox discovery in the Berclair area of Bee County had only small production on first tests and is still testing. Another wildcat, also in Bee County, has been abandoned with no shows reported and a test in Nueces County is drilling ahead after reporting several shows (p. 82).

CALIFORNIA: The Paloma distillate field has been extended approximately 1 mile north by a well producing a normal black crude oil with a very low gas-oil ratio. A new deep producing zone has apparently been found in the Del Valle field of Los Angeles County (p. 87).

PERMIAN BASIN: A wildcat in northeastern Ward County is flowing oil from the lower Permian lime. It is on the same structure and about ½ mile northwest of the deep Ordovician discovery. The Embar Ordovician field has been extended 1 mile eastward and flush production has been found in a shallow sand in the Soma-Noelke area of Crockett County (p. 80).

TEXAS GULF COAST: The fourth producing horizon has been opened in the Lolita field of Jackson County and a wildcat in Austin County is testing several shows encountered in the Wilcox (p. 94).

ILLINOIS: A half-mile east extension is indicated for the Sesser pool of Franklin County and a successful drill-stem test promises a third producing horizon to the new field east of the East Inman field (p. 84).

NORTH CENTRAL TEXAS: A wildcat in northwestern Wise County has opened the first oil production in that county and wildcats in Throckmorton and Montague counties may open new fields (p. 83).

MICHIGAN: Intensive natural-gas development for Clare County is indicated by the issuance of several drilling permits for gas wells in the county. Three wells are being planned as followups to a recently completed gusher which has revived interest in the northern end of the Reed City field (p. 92).

EASTERN TEXAS: Critical depth has been reached at a deep wildcat in northern Cherokee County and hole is being conditioned to test the well. A well in the Joaquin gas pool flowed oil during a drill-stem test and may lead to oil production from other wells in the pool (p. 90).

WEST VIRGINIA: A test is being started near the Appalachian frontier on Cabin Mountain. The test is located on the axis of the Blackwater anticline in Tucker County (p. 93).

COMPLETIONS IN ALL FIELDS . . .

(Week Ended October 17, 1942)

	Oil	Gas	Dry	Total	Footage	Ttl. comp. to date 1942	Ttl. comp. to date 1941
N. Y., Pa., and W. Va.	48	23	6	77	150,197	2,816	4,724
Ohio	5	9	9	23	65,889	922	1,333
Indiana	2	0	4	6	10,278	288	405
Kentucky	0	2	0	2	6,087	218	533
Illinois	34	0	12	46	119,910	1,459	2,909
Michigan	6	2	6	14	31,772	581	706
Kansas	19	1	14	34	111,605	1,287	1,763
Nebraska	0	0	0	0	0	30	72
Missouri, Iowa	0	0	1	1	2,425	12	32
Oklahoma	7	2	5	14	44,523	970	1,526
Texas:							
North Central Texas	8	0	13	21	61,778	928	2,293
West Texas	21	0	1	22	96,781	1,121	1,796
Texas Panhandle	4	0	0	4	12,607	304	533
Eastern Texas	9	0	1	10	61,893	331	859
Texas Gulf Coast	5	0	6	11	79,379	577	868
Southwest Texas	12	0	7	19	80,627	874	1,496
Total Texas	59	0	28	87	393,065	4,135	7,845
North Louisiana	3	0	3	6	32,419	397	606
Louisiana Gulf Coast	6	0	2	8	80,498	413	696
Total Louisiana	9	0	5	14	112,917	810	1,302
Arkansas	2	0	1	3	18,598	141	158
Mississippi and Southeast	0	0	0	0	0	61	217
Montana	2	0	1	3	7,345	164	234
Wyoming	2	0	3	5	13,483	90	149
Colorado, Utah	0	0	2	2	15,676	19	27
New Mexico	2	0	0	2	7,675	216	224
California	14	0	4	18	76,961	596	901
Total United States	211	39	101	351	1,188,406	14,815	25,060
Total previous week	183	44	96	323			
Week ended Oct. 18, 1941	413	61	161	635			

PERMIAN BASIN, PANHANDLE

Ward County Wildcat Has Large Flow From Lower Permian Lime

By W. D. THORN

MIDLAND, Tex. — Flowing oil at the rate of 25 bbl. hourly through a drill stem on a test of lower Permian lime pay from 5,595-5,655 ft., Shell Oil Co. 2 Sealy-Smith Foundation, in northeastern Ward County, definitely proved the existence of the 5,600-ft. pay zone on the same structure where the 1 Sealy-Smith Foundation in August of this year was completed for 2,852 bbl. daily from the 10,000-ft. Ordovician zone. The first well was reported to have logged several hundred feet of saturation in the lower Permian; the second test was drilled with this zone as its objective. It is located approximately ¼ mile northwest of the deeper discovery.

The drill-stem test at 5,595-5,655 ft. was open 58 minutes, through ⅝-in. bottom choke and a 2-in. opening at the top. It started blowing air immediately after tool was opened and developed gas after 4 minutes. Thirty-four gravity oil flowed at the rate of 25 bbl. an hour within 48 minutes. When pipe was pulled it recovered 870 ft. of oil and 30 ft. of oil-cut drilling mud. After this performance the hole was deepened to a total depth of 5,671 ft. in lime, at which depth it likely will set casing and test. A drill-stem test at 5,652-65 ft., open 56 minutes, recovered 270 ft. of oil-cut mud and 30 ft. of water, while a final drill-stem test, at 5,648-71 ft., open 1 hour, recovered 670 ft. of mud slightly cut with oil and gas and no water.

This new producer is only 7 miles east of the North Ward shallow producing area and occupies a key position on the heavily played trend for lower Permian and pre-Permian pays extending east of and parallel with the old Ward-Winkler-Lea counties upper Permian fields. The 5,600-ft. zone is believed the equivalent of the Tubb pay zone in the Sand Hills field, about 17 miles to the southeast in Crane County, where the comparable pay strata now produces over an area of close to 7,000 acres. Shell's Sealy-Smith lease block consists of 19,725 acres, solid.

Atlantic Refining et al 1-A Tex-U, deepest active wildcat in West Texas, and in southwestern Andrews County, was drilling below 10,336 ft. in sand and shale.

Hope for production in Union Oil Co. of California 1-A Means, wildcat 3 miles southeast of Shafter Lake, Andrews County, was shattered as operators ordered the hole abandoned at a total depth of 4,699 ft. At this depth it had filled 420 ft. with fluid, 80 per cent sulfur water, and 20 per cent oil.

Embar Field Extended West

Phillips Petroleum Co. 11 University-Andrews assurred spread of the Embar Ordovician field approximately 1 mile westward when it recovered 4,320 ft. of clean oil and 180 ft. of gas-cut mud on a 1-hour and 15-minute drill-stem test from 7,749-7,865 ft. It has cemented pipe to complete.

Shallow Production Found North of Soma-Noelke

Completion of a shallow flush producer 1,487 ft. north of the northwestern sector of the Soma-Noelke area in western Crockett County has aroused considerable interest. A. J. Rife and Floyd Scott 2 Thompson (was 3 Thompson), rated daily potential of 2,148 bbl. daily from 1 ft. of sand at 1,535-36 ft., total depth, on basis of a 1-hr. gage of 89.5 bbl., natural, through open tubing. The operators have made location for 3 Thompson, 1,020 ft. west and slightly south of the new well. The lease consists of the southeast 120 acres of Section 58, Block GG, B. B. Ingham Survey, purchased recently by Rife and Scott from Wilshire Oil Co. of Los Angeles. The 1 Thompson, included in the purchase, was retested last week and flowed 40 bbl. of oil in 1 hour through open tubing in pay at 1,278-85 ft. Rife et al secured their own outlet for crude in this area last mouth by building 4 miles of 3-in. pipe line from the field to Texas-New Mexico Pipe Line Co.'s trunk-line station at Iraan, across the Pecos River.

A. G. Talbot 1 W. J. Wilkinson, Menard County wildcat on the eastern border of the Edwards Plateau, was rigging up cable tools for a 4,000-ft. Ellenburger test. It is located in SE SE of Section 55, J. H. Gibson Survey A-290, northwestern part of the county.

In the North Plains territory, L. A. Helms of Tulia, Tex., et al 1 Harris, SW NE of Section 103, Block M-10, B.S.&F. Survey, was getting under way. Contractor George Livermore was rigging up rotary for the 5,500-ft. test, which is about 12 miles northeast of Tulia. Sinclair Prairie et al are reported assisting in the drilling of this venture.

Except for J. R. Sharp 1 Elliott, northwestern Lubbock County wildcat which was last reported conditioning hole to make a drill-stem test at 5,820-6,000 ft., this new Swisher County wildcat is the only operation under way in the big expanse of territory lying between the West Texas and the Texas Panhandle producing fields.

WEST TEXAS COMPLETIONS

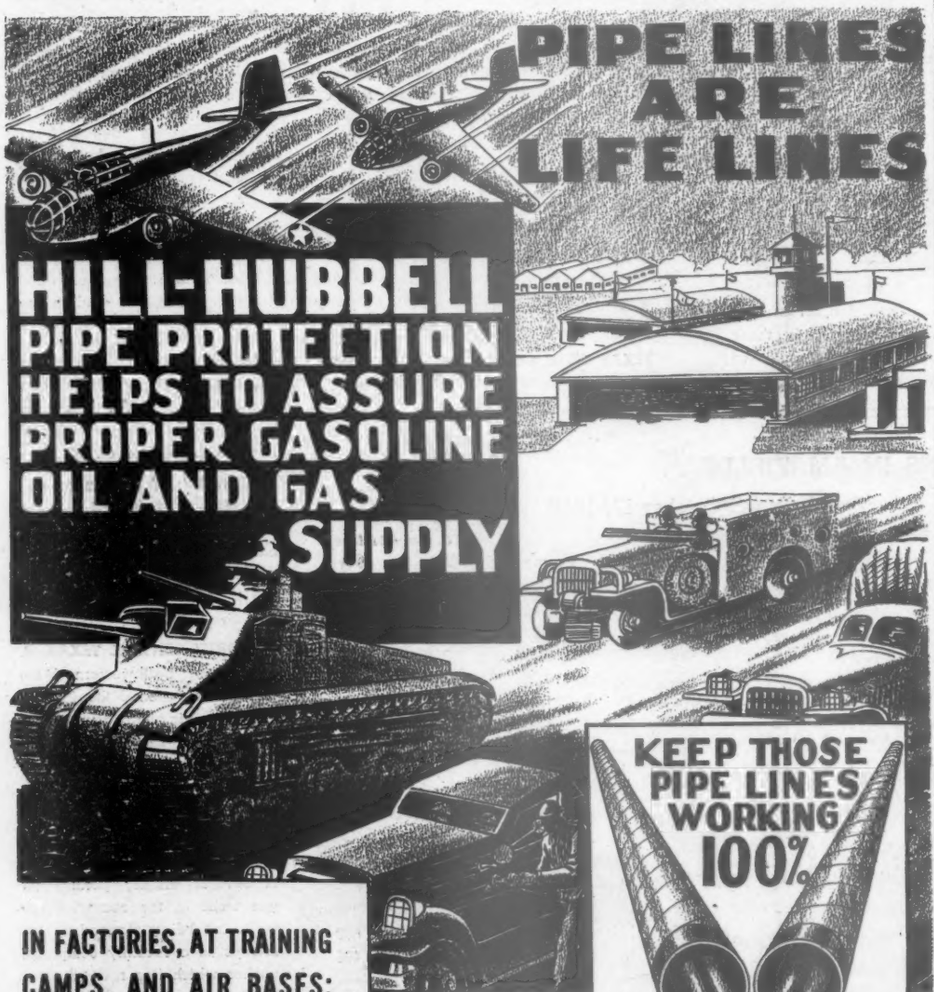
Wildcats

Pecos County: L. C. McKean 1 Phillips Pet.-J. L. Nutt, SE NE Sec. 16, Blk 125, T.&St.L. Sur., 18 mi. SE Fort Stockton, elev. 2,883 ft., pumped 100 per cent sulfur water, T.D. 2,371 ft. in lime.

Fields

Fullerton field, Andrews County: Fullerton Oil Co.

(Continued on Page 100)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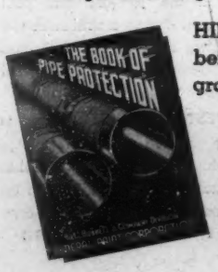

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(*Right*) Allis-Chalmers Model E Double Drum Winch Tractor with two pole telescoping mast. This unit is used to service a number of wells in the rough terrain of a Northeastern field.

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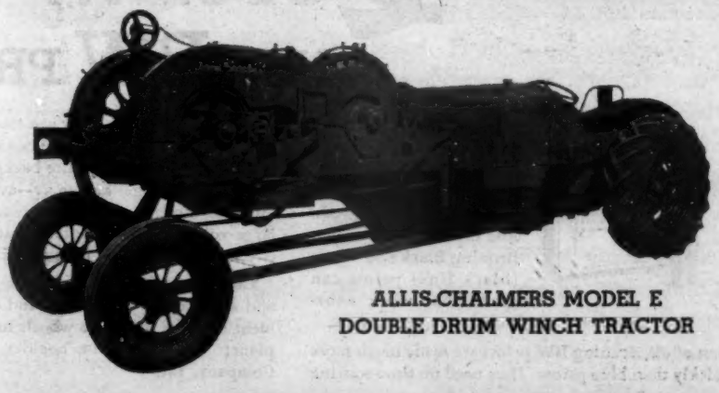

ALLIS-CHALMERS MODEL E
DOUBLE DRUM WINCH TRACTOR

SOUTHWEST TEXAS

Deep Wilcox Discovery in Bee County Still Testing

By W. V. HOWARD

CORPUS CHRISTI, Tex.—Magnolia's deep Wilcox discovery in the Berclair area of Bee County is still testing, having made 7 bbl. in 12 hours from 10,080 to 10,120 ft. Tubing pressure was 750 lb., casing pressure 1,350 lb., and a gas-oil ratio of 23,000 cu. ft. was reported. Formation tops in this well are as follows: Vicksburg 3,214 ft., Hockleyensis 3,905 ft., Dibollensis 4,621 ft., Yegua 4,900 ft., Cook Mountain 5,535 ft., Cyclammia 6,690 ft., Mount Selman 6,800 ft., and Carrizo 9,820 ft.

Also in Bee County, 7 miles northwest of Burnell, Stanolind's 1 M. S. Gould was being abandoned with no shows reported since the oil sands at 5,753-57 ft. and at 5,992-97 ft. Cores were taken at 8,926, 8,933 and 8,935 ft. with no shows reported and drilling was stopped at 9,500 ft.

Osborn, Fleet and Mid-Continent 1 Thomas Dix in Nueces County, 3 miles northeast of Banquette has reported several shows but, at last reports, was drilling ahead in a salt water sand at 7,072 ft. Odors were reported at 6,605-06 ft. and at 6,727-29 ft. with a show of 6,785-89 ft. A 15-minute drill-stem test recovered 20 ft. of mud and bottom-hole flowing pressure was 325 lb. Shut-in pressure was 2,700 lb. A gas sand was found at 6,794-6,800 ft., with oil showing at 6,800-05 ft. A 30-minute drill-stem test recovered 40 ft. of mud with bottom-hole flowing pressure of 250 lb.

Deep Test Plugged Back to Shut Off Water

Humble's deep Edwards lime producer in Atascosa County continues disappointing. The well, 1 M. L. Thompson, flowed small heads for 2 days and then died. The well found production in the top of the Edwards lime and was drilled to 7,576 ft. Presence of water necessitated plugging back to 7,572 ft. Although the water was shut off, it appears that the well is too near the edge of the newly discovered field. The rig, which was moved off last week, has been moved back and the operators are trying to agitate the well so that it will operate on flow valves as the depth is considered too great for economical pumping." Humble 1 Soechting, 1,820 ft. northeast of the discovery, is standing partly rigged and should spud soon.

In Frio County, Wiegand 1 Gilliam reported a show of oil in the top of the Buda lime at 5,714 ft. The well was temporarily abandoned last spring at 5,375 ft. but work started again recently.

The most active section of the fault-line district is Williamson County, where three shallow wildcats were abandoned last week and a new one started. The new well is H. C. LeFors 1 Annie M. Pfluger in the William Parker Survey, 6 miles northeast of Taylor.

LOWER GULF COAST COMPLETIONS

Wildcats

Bee County: Rowe and DeLange 1 M. J. White, Refugio County School Land, faint odor 4,190-93 ft., dry at 4,711 ft.

Fields

Agua Dulce, Nueces County: Lockhart Oil Co. 1 Wm. Gerhart, completed as input well at 7,100 ft., perf. 7,053-73 ft.

Richardson Pet. Co. 4 Guaranty Title & Trust, 15 bbl. distillate and 885,000 cu. ft. gas, through ⅛-in. choke, T.P. 2,225 lb., C.P. 2,550 ft., T.D. 6,907 ft.

Greta, Refugio County: Monday Oil Co. 4 J. F. B. Heard, 72 bbl. through 7/64-in. choke, T.P. 350 lb., C.P. 550 lb., T.D. 4,460 ft.

Odem, San Patricio County: Seaboard 6-A Laura Compton, 101 bbl. through ⅛-in. choke, T.P. 425 lb., C.P. 850 lb., gas-oil ratio 347:1, perf. 5,424-40 ft., T.D. 5,532 ft.

Quinto Creek, Jim Wells County: Kilgore Developers 1 H. Schonvogel, 12 bbl. through 3/32-in. choke, T.P. 1,750 lb., C.P. 1,950 lb., gas-oil ratio 17,920:1, T.D. 5,134 ft.

Seeligson, Kleberg County: Humble 5 King Ranch-Cabeza, 113 bbl. through ⅛-in. choke, T.P. 820 lb., C.P. 720 lb., gas-oil ratio 758:1, T.D. 6,061 ft.

Seeligson, Jim Wells County: Shell 12 L. Seeligson, 160 bbl. through 7/64-in. choke, T.P. 1,090 lb., C.P. 1,150 lb., T.D. 5,985 ft.

Transwestern 17 B. H. Dunlap, 71 bbl. through 5/64-in. choke, T.P. 925 lb., C.P. 1,125 lb., T.D. 6,050 ft.

Stratton, Kleberg County: Humble 20 King Ranch-Paso Ancho, 14 bbl. through ⅛-in. choke, T.P. 1,100 lb., C.P. 1,300 lb., gas-oil ratio 825:1, T.D. 6,618 ft.

SOUTH TEXAS COMPLETIONS

Wildcats

Duval County: Circle Oil Co. 1-A O. F. Kreis, L. Gunter Sur. 76, A-17-22, 1½ mi. SE of Kreis field, oil odors 3,405-21 ft., dry at 3,515 ft.

Fields

Casa Blanca, Duval County: M. L. Massingill 5 D.C.R.C. Sur. 293, pumped 31 bbl., 19.5° oil at 1,062 ft.

Colorado, Jim Hogg County: Humble and Sun 2-B T. T. East, Unit 1, 80 bbl. through ⅛-in. choke, T.P. 100 lb., C.P. 400 lb., gas-oil ratio 195:1, T.D. 3,079 ft.

Rincon, Starr County: Continental and Davis 63-H Slick estate, 197 bbl. through ⅛-in. choke, T.P. 340 lb., C.P. 800 lb., gas-oil ratio 337:1, T.D. 4,258 ft.

Sweden, Duval County: Hiawatha Oil & Gas 2 Suthland Life Ins., workover, old T.D. 5,980 ft., perf. 5,095-5,106 ft., squeezed and perf. 4,235-55 ft., 22,000,000 cu. ft. gas, 6 bbl. distillate and 23 bbl. water, through 5/32-in. choke, T.P. 1,530 lb., C.P. 1,620 lb.

Washburn, La Salle County: Quintana 14 South Texas Snyd., 331 bbl. through ¼-in. choke, T.P. 200 lb., C.P. 550 lb., T.D. 5,100 ft.

SOUTH CENTRAL TEXAS COMPLETIONS

Wildcats

Caldwell County: C. E. Star 1 Gus E. Brown, William Fishbough Sur., 3 mi. E of Luling, dry at 3,274 ft., P.B. to 3,255 ft.

Karnes County: Capricorn Oil Co. 1 Moozygemba, D. A.

(Continued on Page 91)

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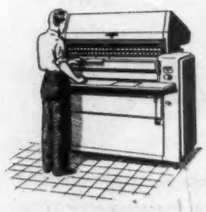

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NORTH CENTRAL TEXAS

Large Flowing Well Opens First Oil Production in Wise County

By W. D. THORN

WICHITA FALLS, Tex.—Initial oil flows by wildcats in Wise and Throckmorton counties topped North Texas development last week. In the former county, Stanolind 1 Menasco, previously indicated Bend conglomerate discovery, made a flow of 20 bbl. of oil in 20 minutes and later when opened for 5 minutes on a ¾-in. choke flowed 10 bbl. of oil. The production is natural, from perforations in casing at 5,790-5,815 ft. It is ¾ mile northeast of Cranfill-Rodgers 1 McKay failure, first test on the Park Spring prospect, in the northwestern corner of Wise County. Tanks were being erected for additional testing. Park Spring is a geophysical prospect located on a large regional ridge feature within the southwestern confines of the Fort Worth basin. It is several miles north of two geophysical blocks taken by Pure Oil Co. in the early days of the Fort Worth basin deep play, which blocks subsequently were farmed out to H. L. Hunt, who drilled one deep dry hole on each of the blocks.

Throckmorton County Wildcat Testing

Humble Oil & Refining Co. 1 J. D. Mathews et al, wildcat 9 miles southwest of the city of Throckmorton, in the Alvin Tarter Survey A-824, and on a 3,200-acre block, swabbed 1 bbl. of oil and 8 bbl. of drilling water in 8 hours from a total depth of 4,613 ft. in Mississippian lime topped at 4,570 ft., with 6-in. casing set at 4,590 ft. It was then treated with 2,000 gal. of acid, cleaned itself for 2 hours into pits and when turned into tanks gaged 73 bbl. of oil and 17 bbl. of acid water in 1 hour and 45 minutes through ⅝-in. choke, with 100 lb. flowing pressure on tubing. Shut-in tubing pressure built up to 530 lb. in 18 hours. More storage is being erected to make additional tests.

New Pool in Sight for Montague County

Continental Oil 1 Ketchum, a wildcat 2 miles east of Bowie, may open a new shallow Strawn sand field. After plugging back from a total depth of 7,506 ft. to 3,350 ft., with 7-in. casing set at 3,330 ft., it bailed 25 bbl. of oil and 240 bbl. of wash water in 24 hours, then started swabbing and in six trips recovered 13 bbl. of water and 4 bbl. of oil, then lost swab and was trying to recover it to continue testing.

Sinclair Prairie 1 Eanes, 7 miles southwest of Bowie and 7 miles northwest of Stanolind's Wise County discovery well, squeezed off holes at 5,932-38 ft. and was preparing to reperforate. Drill-stem tests in the Bend section in this well showed more favorably than tests made in the same formation by Stanolind's discovery.

Sinclair Prairie 1 Zachary, in the Sanders field 4 miles southwest of Nocona, found a new sand of Strawn age at 4,790-4,810 ft. which returned 1,490 ft. of oily mud, 2,100 ft. of oil and gas-cut mud and 90 ft. of drilling mud on a 30-min. drill-stem test. It was drilling below 5,412 ft. toward the regular 5,900-ft. Bend pay.

Standard Oil of Texas and Hanlon-Buchanan, Inc. 1 Donnell, wildcat in southwestern Young County, Section 2371 of T.E.&L. Survey, had a spray of oil and estimated 2,000,000 cu. ft. of gas daily on drill-stem test of the Caddo lime at 3,830-49 ft.

NORTH CENTRAL TEXAS COMPLETIONS

Wildcats

Archer County: Bridwell Oil Co. 1 H. Osterman, Lot 33, Blk. 4, Clark & Plumb Sur., dry, T.D. 1,174 ft.
Bridwell Oil Co. 1 A. H. Schreiber, Lot 34, Blk. 4, Clark & Plumb Sur., T.D. 1,193 ft., dry.
George W. Cooper 1 R. L. Moody, Sec. 1, S.P.R.R. Sur. A-422, T.D. 5,107 ft., dry.
George Proctor 1 E. V. Pearston, Sec. 123, Harris subd., dry, T.D. 2,795 ft.

Jack County: R. B. Farris 1 J. C. Lindsey Est., I. N. Wright Sur. A-897, dry, T.D. 3,503 ft.
Rathke Oil Co. 1 Schnocke-"Riley," A. Schnocke Sur. A-2400, dry, T.D. 5,338 ft.
Taubert-McKee and Sinclair Prairie 1 R. E. and J. F. Boyd, 2 mi. S Post Oak, N part county, pumped 30 bbl. oil after acid from perf. at 6,408-18 ft., T.D. 6,435 ft., Ellenburger pay, *discovery*.

Parker County: "Tex" Harvey Oil Co. 1-B Ella Gilbert, SW part county, G.W.T.&P. Sur. A-1958, dry, T.D. 4,898 ft.

Wichita County: C. Y. Gorman et al 2 W. L. Doyle, G. Wheelright Sur. A-320, pumped 5 bbl., sand 1,211-20 ft., T.D. 1,220 ft.

Young County: Talbot & Robitaille 1 P. Ferguson et al, S. Tynes Sur. A-274, 2½ mi. S of Markley, sand 3,438-49 ft., flowed and pumped 404 bbl., *discovery*.
Taubert-McKee 1 S. C. Shanafelt, J. Poitevent Sur. A-1509, dry, temporarily abandoned, T.D. 4,317 ft.

Fields

Swastika pool, Archer County: Producers Dev. Co. 10 G. H. Roach, Sec. 1595, T.E.&L. Sur., sand 1,262-70 ft., pumped 10 bbl., T.D. 1,270 ft.

Megargel pool, Archer County: White & Duncan 5 J. T. Richardson, M.E.P.&P. Sur. A-715, sand 1,233-37½ ft., flowed 100 bbl., T.D. 1,237½ ft.

Thornberry pool, Clay County: Magnolia Pet. Co. 2 C. T. Taylor-Duncan, dry, T.D. 1,385 ft.
S. Taylor 1 Perkins et al, Blk. 57, Bacon subd., dry, T.D. 1,178 ft.

Petrolia pool, Clay County: W. H. Spradling 3 Taylor-Elliott, Blk. 56, Bacon subd., dry, T.D. 1,146 ft.
S. Taylor 1 Stine Est., Blk. 58, Bacon subd., dry, T.D. 1,880 ft.

Hoefle pool, Jack County: Anderson-Prichard Oil Corp. 1 E. M. Edwards, A. James Sur. A-318, lime pay 4,902-23 ft., pumped 65 bbl. oil and 75 bbl. salt water, T.D. 4,923 ft.
Taubert-McKee et al 1 Mary Hoefle-B, J. W. Barrett Sur. A-48, dry, T.D. 547 ft.

K.M.A. field, Wichita County: W. H. Hammon 13 fee, Sec. 2, E.T.R.R. Sur. A-762, sand 3,970-95 ft., flowed 370 bbl., T.D. 3,995 ft.

Padgitt pool, Young County: Shell Oil 2 J. W. Bullock-A, Sec. 343, T.E.&L. Sur., lime pay 4,772-88 ft., flowed 2,375 bbl. oil and 675 bbl. salt water, T.D. 4,788 ft.

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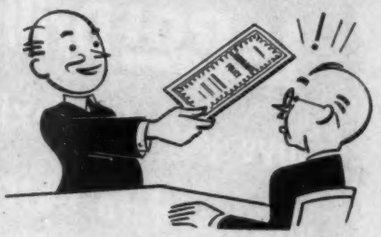

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ILLINOIS FIELD REPORT

Half Mile East Extension for Sesser Field Indicated

MATTOON, Ill.—Operators have set 5½-in. casing to 2,724 ft. at the M. P. Gilmour 1 Hudson-Jones, SE SW NW 18-5s-2e, ½ mile east of the Sesser pool. An electric log taken at the 1 Hudson-Jones indicated 16 ft. of good saturation and 8 ft. of fair saturation in the Aux Vases sand at 2,724-50 ft. Total depth of the hole is 2,754 ft. and operators interested in the area believe that the well will be the best producer drilled in the field to date. Plug was to be drilled during the latter part of the week preparatory to testing the well.

Cherry & Kidd made a successful drill-stem test on the Clore sand at 1,725-35 ft. in their 5 Mary Kerwin et al, NE SE SW 11-8s-10e, last week indicating the third possible pay zone in the area. During the test 360 ft. of clean oil and 120 ft. of oil-cut mud were recovered in 30 minutes. The 5 Mary Kerwin et al is located in a new pool approximately ¾ mile northeast of the East Inman pool of Gallatin County. The discovery well of the pool was completed in the Palestine sand and the second well in the pool was completed in the Tar Springs sand at about 2,000 ft. Although the leases in the area are small and closely held, it is believed the three shallow pay zones will prove very profitable.

Southward Trend in Covington Field Development

Recent developments in the Covington field of Wayne County indicate that the field will extend much farther south than operators first believed. All recent wells drilled in the field are on the south side and no dry holes have yet been encountered. The Sohio Producing Co. according to last reports was making another production test on an excellent McClosky producer, 1 Hanna-Sons community, NW NW 31-1s-7e, southernmost producing well in the field to date. The 1 Hanna-Sons is producing from the McClosky lime at 3,212-25 ft. at the rate of 2,547 bbl. of oil daily after acid treatment. If this well is completed for as large a production as has been indicated it will be the largest producer yet completed in the field.

ILLINOIS COMPLETIONS

Wildcats

Clay County: J. B. Washburn 1 Baylor Consol., N½ NE NW 15-2n-7e, dry at 3,119 ft., Aux Vases 2,968 ft., McClosky 3,084 ft.

Gallatin County: Cherry & Kidd 2 Kerwin, SE NE SW 11-8s-10e, pumped 250 bbl., sand 2,043-61 ft., T.D. 2,065 ft.

Jefferson County: J. Water 1 Kell, SW SW NE 9-1s-1e, dry at 2,080 ft., Benoist 2,067 ft.

Lawrence County: Olds et al 1 Stoltz, NE NE SW 28-2n-12w, dry at 2,097 ft., Weller 1,965 ft., Benoist 2,064 ft.

Ray Rothill 1 Dager, SE SE NE 20-2n-12w, dry at 2,392 ft., Benoist 2,193 ft., Aux Vases 2,296 ft., McClosky 2,377 ft.

St. Clair County: C. W. Young 2 Holtz, S½ NE SW 29-3s-6w, dry at 650 ft.

Washington County: Texas 1 Bain, NE NE NW 26-3s-2w, dry at 1,668 ft., Ste. Genevieve 1,471 ft.

Wayne County: N. V. Divan 1 Milner, NE NW SW 9-1s-7e, dry at 3,249 ft., Ste. Genevieve 3,191 ft., McClosky 3,233 ft.

Fields

Allendale, Wabash County: F. Jablonski 1 Tanquary, NE 34-2n-12w, pumped 150 bbl., 30-qt. shot 2,007-18 ft., T.D. 2,018 ft.

Bible Grove, Clay County: Texas 4 Nadler, SE SW SW 4-5n-7e, pumped 20 bbl., Weller 2,540-48 ft., T.D. 2,548 ft.

Cameron 2 Landwehr, NW NE NE 8-5n-7e, dry at 2,825 ft., Aux Vases 2,692 ft., McClosky 2,800 ft.

Bluford, Jefferson County: Tide Water 2 Newton, N½ NW SE 1-3s-4e, pumped 133 bbl., McClosky 3,076 ft., perf. 3,080-86 ft., T.D. 3,094 ft.

Lario et al 2 Starr Bros., N½ SE SW 1-3s-4e, pumped 53 bbl., perf. 3,109-15 ft., acidized, McClosky 3,111-19 ft., T.D. 3,210 ft.

Boulder, Clinton County: E. Frank Jones 2 Harrison, SE NW 2-2n-2w, flowed 134 bbl., Devonian 2,584 ft., T.D. 2,670 ft.

E. Frank Jones 1 Middle Lake Club, SE SE NE 3-2n-2w, dry at 1,275 ft.

Covington, Wayne County: Deep Rock 2 Sanford, SE NE 30-1s-7e, pumped 250 bbl., 2,000 gal. acid, Ste. Genevieve 3,175 ft., T.D. 3,310 ft.

Dale, Hamilton County: Texas 2 Miller, NW SE SW 8-6s-7e, dry at 3,079 ft., Aux Vases 3,030 ft.

Pure 1 Johnson, NW SW SE 18-6s-7e, pumped 309 bbl., natural, Weller 2,723 ft., T.D. 3,210 ft.

Pure 2-A Layman, NW SE NW 17-6s-7e, pumped 122 bbl., Weller 2,753 ft., 45-qt. shot 2,753-72 ft., T.D. 3,062 ft.

Shell 1 Webb, NW NE SW 18-6s-7e, flowed 1,028 bbl., 25-qt. shot 3,071-88 ft., Aux Vases 3,044-74 ft., T.D. 3,101 ft., P.B. 3,095 ft.

Carter 2 Mayberry, SE SW SW 12-6s-6e, pumped 77 bbl., 40-qt. shot 3,065-78 ft., Aux Vases 3,062-78 ft., T.D. 3,078 ft.

East Centerville, White County: Magnolia 4 Jones, SE SE NE 7-4s-10e, pumped 60 bbl., sand 2,491 ft., T.D. 2,500 ft.

Flora, Clay County: W. C. McBride 1 Mainch, SE NE NW 10-3n-7e, pumped 71 bbl., shot at 2,595 ft., Cypress 2,580 ft., T.D. 2,605 ft.

Geff, Wayne County: Pure 2 Tubbs, SW NW SW 12-1s-7e, dry at 3,208 ft., McClosky 3,193 ft.

Schultz & Wix 1 Morris, NE SW SE 11-1s-7e, pumped 200 bbl., Aux Vases 3,082-98 ft., shot 3,082-98 ft., T.D. 3,100 ft.

Keensburg, Wabash County: Magnolia 3 Meridith, SE SW NE 30-2s-13w, pumped 40 bbl., Cypress 2,469 ft., T.D. 2,485 ft.

Louden, Fayette County: Carter 2 Rhedemeyer, SW SE NE 3-8n-3e, flowed 312 bbl., Benoist sand 1,610-15 ft., T.D. 1,629 ft.

Mount Erie, Wayne County: Jablonski & Duncan 2 Fitten-Shelton, SE SE 35-1n-8e, flowed 616 bbl., 3,000 gal. acid, McClosky 3,132-42 ft., T.D. 3,144 ft.

New Harmony, White County: Cal Stover Pet. 20-B Miller-Ford, NE NW SE 21-4s-14w, pumped 72 bbl., 20-qt. shot 2,825 ft., Aux Vases, T.D. 2,855 ft.

Noble, Richland County: Pure Oil 32 Coen, NE 9-3n-9e, pumped 168 bbl. oil and 60 bbl. water, perf. 2,593-97 ft. in sand, T.D. 2,640 ft.

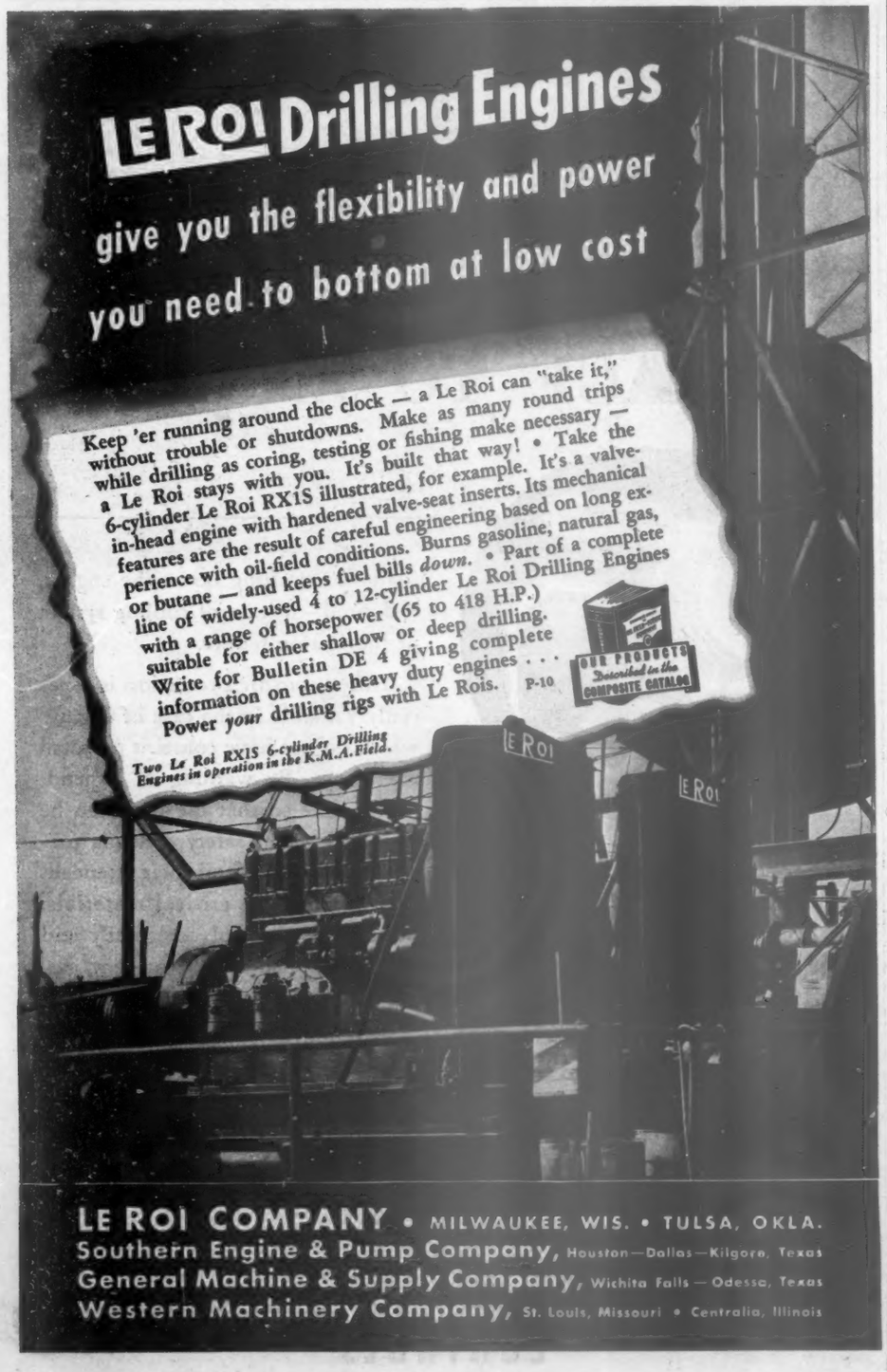
Phillipstown, White County: J. V. Manvil 4 Spencer, SW NE SW 31-4s-11e, pumped 455 bbl., shot 50 qt. 2,290 ft. in sand, T.D. 2,318 ft.

Roland, White County: Magnolia 6 General American Life, SW SE SW 1-7s-8e, pumped 67 bbl. natural, Waltersburg 2,183 ft., T.D. 2,919 ft.

Magnolia 5 General American Life, NW SE SW 1-7s-8e, pumped 65 bbl. natural, Waltersburg 2,220 ft., T.D. 2,231 ft.

Rural Hill, Hamilton County: Ohio Oil 6 Moore, NE

(Continued on Page 92)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Pumping this 3600-foot East Texas well *is a relatively light job today. But, should the load get really heavy, this "Oilwell" TC-23 Unit will go on pumping smoothly and with utmost reliability. Its great service range assures efficient operation as well conditions change over the years.*

THE versatile, *new* "Oilwell" TC-23 and TC-33H Pumping Units perform with smooth efficiency over extremely wide service ranges. *Each* unit is given the operating flexibility of *two* different units by a unique construction feature which makes available *two* combinations of stroke lengths. One combination provides longer strokes; the other provides higher polished-rod load capacities.

The conversion from one combination of stroke lengths to the other is accomplished by (1) reversing the position of the saddle trunnion assembly on the walking beam, and (2) moving the samson post on the base beams to an alternate set of bolt holes. No change in foundation nor extra machine work is required. The additional operating flexibility resulting from this conversion feature may prove to be a life-saver on a well in which pumping conditions are likely to change from time to time.

SPECIFICATIONS

Unit	TC-23	TC-23	TC-33H	TC-33H
Set up for maximum stroke of . . (inches)	54	64-½	64	74
Polished-Rod Capacity (A.P.I. Rating) . . . . . (pounds)	17,400	16,000	21,000	19,500
Peak-Torque Capacity at 20 s.p.m. (A.P.I.) . . . . . (inch-lbs.)	115,000	115,000	160,000	160,000
Overall Gear Ratio	32.26:1	32.26:1	31.5:1	31.5:1

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ROCKY MOUNTAIN AREA

Wildcats in Rocky Mountain Area Prove Disappointing

By T. R. INGRAM

DENVER, Colo.—Hope for one or more discoveries in the Rocky Mountain area which ran high last week dwindled with disappointing results in several important wildcats. The most promising was the General Petroleum Corp. 78-31-G, SW SE SE 34-17n-68w, Horse Creek district, north of Cheyenne, Wyo. It reached what was believed to be the top of the Dakota at 5,265 ft. It then cored 25 ft. to 5,290 ft. There was no recovery for the first 5 ft., but from 5,270-90 ft. the core showed saturation. The packer was set at 5,254 ft. for a drill-stem test, which showed drilling mud with some oil. The sand contained a little lime, but no permeability. Coring then was resumed. It is considered possible that the showing was in the Muddy sand above the Dakota and that the latter has not yet been reached.

Colorado Wildcats Dry

The Continental Oil Co. 1 Young, SW SE SE 11-19s-65w, 10 miles north of Pueblo, Colo., failed to find the marine Pennsylvanian beds in place and was abandoned in granite at 6,112 ft. This was a test on a basinward fold off the Pike's Peak arch. There is a pronounced geological high at this location on which several tests have been drilled, but none of these went through the red beds. This formation has been found in this general area to rest on the granite, but it was believed that out in the basin the marine beds might be encountered. The Young well went out of the red beds at 5,690 ft., going into hard green shale and lime and then into the granite.

The Minnelusa Oil Corp. announced the abandonment of its 1 Bora, SE NE SW 5-1s-69w, El Dorado district, Boulder County, Colorado, after setting plugs. The well is standing rigged up awaiting orders. It had several shows of gas and distillates, but the hole was not unloaded for tests.

Superior Oil Co. 2-A Tribal, CEL NW SW 15-3n-1w, Pilot Butte field, joint with the British American Oil Producing Co., reported a completion 2 weeks ago, flowing 200 bbl. natural from the Tensleep, increased to 400 to 500 bbl. and when put on the pump made 650 bbl. daily. It is located ¼ mile to the northwest of the discovery in the Tensleep.

British American 1 Suzanna Enos, a southwest offset to the Tensleep discovery, is a near completion and swabbing 400 bbl. daily from the Tensleep. Seven-inch casing was set at 6,305 ft. and total depth was 6,351 ft. It is an east offset to 1 Stock, which was dry in the Tensleep but made a small well in the Embar.

Superior Oil Co. 1 Brimmer, a Tensleep test on the Bunker Hill structure, Carbon County, Wyoming, in CWL NW NE 32-27n-89w, was drilling in hard Tensleep formation at 8,805 ft. and at that depth had no important shows.

Kevin-Sunburst Field

The rim-rock district on the west side of the Kevin-Sunburst field in which an extension or new pool was opened early in 1941 in Hi-Gravity Oil Co. 1 Government is attracting attention. It had its first failure the past week in Peterson & Sorenson 2 Government, NE NW SE 18-35n-3w, which was abandoned in water at 2,696 ft. It is a northeast offset to the same operators' 1 Government, which was completed last May for 200 bbl. in 24 hours and averaged 35 bbl. a day on a 10-day test, pinched in against a pressure of 750 lb. on the tubing. The Hi-Gravity discovery well in the SE NW NE of Section 19 made only 5 to 6 bbl. a day on the pump in March 1941. The next well was then drilled ¾ mile to the north and a little west and pumped 120 bbl. a day. The third well, an offset, made 250 bbl. daily on a 10-day test. This group of wells is on the rim rock around the Kevin-Sunburst field. Hi-Gravity has spudded in its fourth well just to the south of the three producers, and between the group and the discovery. A. B. Cobb and the Hardrock Oil Co. (E. B. Coolidge) have started their 1 Government, SW SE NE of Section 17, a mile to the east. The last named is below the rim rock and is on a block of 1,700 acres acquired from Dr. B. A. S. Aronow. It is northeast of the Peterson & Sorensen 2 Government, which was a dry hole. When the discovery was made in 1941 it was expected that several thousand acres between it and the then producing area would come under development. At that time it was outside the defined limits of the field as outlined by the U. S. Geological Survey. A pipe line has been completed from the wells on the rim rock to the Great Northern Railroad north of Kevin and the oil is being exported to Canada. It is a sweet oil, running around 37 gravity.

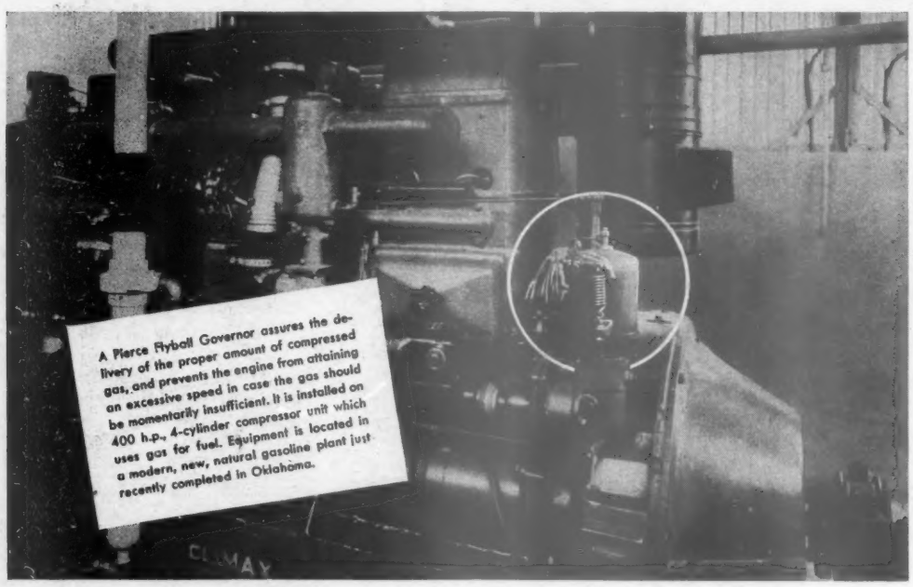
Testing on Ed Reagan 2 Tribal-194, C NW NE 27-37n-7w, an oil discovery reported 3 weeks ago near the Canadian border and northwest of the Cut Bank field, is continuing. It plugged back from 3,899 ft. to 3,897 ft. to shut off a little bottom water. It averaged 87 bbl. of oil per day on a 10-day test following last report when it swabbed and flowed 85 bbl. the first 24 hours.

COLORADO COMPLETIONS

El Dorado, Boulder County: Minnelusa Oil Corp. 1 Bora, SE NE SW 5-1s-69w, T.D. 9,264 ft., dry in Lakota sand.

Steele Hollow, Pueblo County: Continental Oil Co.

(Continued on Page 95)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CALIFORNIA FIELD REPORT

Paloma Extension Well Flows Normal Black Crude Oil

By L. P. STOCKMAN

LOS ANGELES, Calif.—General Petroleum Corp. extended the productive limits of the Paloma distillate field approximately 1 mile to the north this week and in doing so added about 1,000 acres to the field's total amount of productive and potentially productive acreage. The most remarkable thing in connection with this successful extension work is the fact that General Petroleum's outpost is producing a normal black crude oil in contrast with the high-gravity condensate heretofore produced by the field. General Petroleum's new well is 61-33 Gallagher in 33-31s-26e and it was brought in flowing 426 bbl. of very clean 34.2-gravity oil and 308,000 cu. ft. of gas daily from the probable equivalent of the Paloma zone with bottom of the hole at 11,043 ft. The low gas-oil ratio of this new well is another remarkable thing because all previous completions in the field have been characterized by very high gas-oil ratios. General Petroleum's new well is located far out on the north flank of the Paloma structure and is considerably deeper than any other well in the field to date. This completion tends to indicate the probability that Western Gulf and other operators who hold leases that extend out to the edge of the structure might eventually develop production of black oil around the far edges of the gas cap.

The 61-63 Gallagher is only producing from a very small interval as mechanical trouble developed at the last minute and the company was obliged to cement the fish in place and land a string of 7-in. at 11,000 ft. Bottom of this hole was originally at 11,043 ft., but after landing the water string at 11,000 ft. General Petroleum Corp. did not make any additional hole and only cleaned out to 11,005 ft. This means that 61-33 Gallagher cannot be producing from more than 43 ft. of formation and could be producing from only 5 ft. if the bottom of the hole is plugged off. At any rate the lower part of the hole opposite the oil sand is not in any too favorable condition due to an unavoidable fishing job that necessitated sidetracking the fish.

Drilling Activity Increases

Operators holding leases in San Joaquin Valley fields that produce heavy crude oil are rapidly expanding operations and the only thing that has prevented a general drilling program of major proportions is the lack of adequate drilling crews and material. A check made a few days ago reveals the increasing trend of work in fields producing heavy grades of crude oil. At South Belridge, operators have made 10 locations and have seven wells under way at the present time. Coalinga East shows four wells drilling and five additional locations, while the West Coalinga field shows two wells drilling and locations staked for six additional wells. Kern River operators have two incompleted wells drilling and 16 locations made, while McKittrick operators have five locations and eight wells drilling. Midway-Sunset is the most active of the Valley fields with 10 wells drilling and 26 locations either staked or being prepared for early work. At Mount Poso, where several excellent wells were finished earlier in the year, operators are operating one string of tools and have six additional locations mapped. Most of these new wells will be finished in shallow Pliocene zones, and for this reason the total elapsed drilling time from spud to completion will not average much over 2 weeks. If the present amount of drilling is maintained, the total number of new wells finished in 1942 may be substantially higher than expected, but the total footage drilled will be very small. The shallow Pliocene wells now being drilled in San Joaquin Valley fields have average depths around 1,250 ft. as many are being finished at 800 ft. while others will be completed around 1,400 ft. with a few headed down to the Vedder zone around 1,500-1,600 ft. Last year the well average was around 6,000 ft.

SAN JOAQUIN VALLEY COMPLETIONS

Antelope Plains, Kern County: Shell Oil Co. 55-6 Williams, 6-28s-20e, flowed 185 bbl., 16.4-gravity, 2 per cent cut, T.D. 2,573 ft., perf. 2,246-2,573 ft., completed in Williams zone of Pliocene age.

Belridge, South, Kern County: Belridge Oil Co. 48-34-A fee, 34-28s-21e, pumped 90 bbl., 20.1-gravity, 0.5 per cent cut, T.D. 800 ft., perf. 401-800 ft., completed in upper Belridge zone of Pliocene age.

General Petroleum Corp. 3-3-A, 3-29s-21e, pumped 75 bbl., 18.9-gravity, 2 per cent cut, T.D. 794 ft., perf. 428-793 ft., completed in upper Belridge zone of Pliocene age.

General Petroleum Corp. 76 Marina, 3-29s-21e, pumped 5 bbl., 15.1-gravity, 25 per cent cut, T.D. 1,168 ft., P.B. 780 ft., perf. 702-40 ft., completed in upper Belridge zone of Pliocene age.

Coalinga, East, Fresno County: Shell Oil Co. 68-29 fee, 29-19s-15e, pumped 180 bbl., 19.9-gravity, 18 per cent cut, T.D. 2,690 ft., P.B. 2,640 ft., perf. 2,581-2,639 ft., completed in Coalinga zone of Pliocene age.

Greeley, Kern County: Standard Oil Co. 12-17 Kern County Land, 7-29s-26e, flowed 952 bbl., 38.2-gravity oil and 70 bbl. of water; 1,500,000 cu. ft. gas, 18/64-in. bean, pressures 700/950 lb., T.D. 11,510 ft. completed in Rio Bravo and Vedder zones of Miocene age.

McKittrick, Kern County: Richfield Oil Corp. 1 Hall-Baker McKittrick, 3-30s-21e, dry, T.D. 1,398 ft., no oil or gas showings of importance logged from grass roots down to final depth.

Midway-Sunset, Kern County: Chanslor-Canfield Midway Oil Co. 1 fee, 2-32s-22e, dry in gray sand, T.D. 3,623 ft., no important showings of oil or gas encountered.

Tulare Lake wildcat district, Kings County: E. C. von Glahn, 1 Tulare Lake, 4-23s-20e, dry, T.D. 9,731 ft., San Joaquin clay 6,550 ft., lower Fruitvale shale in interval 8,780-8,850 ft., only minor showings of gas logged and only a few colors of oil noted.

Paloma, Kern County: General Petroleum Corp. 61-33 Gallagher, 33-31s-26e, flowed 426 bbl., 34.2-gravity,

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0.2 per cent cut, 308,000 cu. ft. gas, 12/64-in. to 15/64-in. bean, pressures 1,200/1,700 lb., T.D. 11,043 ft., producing from 5 to 43 ft. of oil formation which is probable equivalent of Paloma zone of Pliocene age, producing first black oil developed in this field to date.

Tuscan Springs wildcat district, Tehama County: Texas Co. 1 Walbridge, 32-28n-2w, abandoned because of mechanical condition, T.D. 1,033 ft., encountered high head of salt water at 397 ft., drilled to 1,033 ft., could not shut off water without landing second string of casing and this would have reduced diameter of hole to the point where it would be almost impossible to land another string in event production of oil or gas appeared imminent.

Few Wildcats Under Way In Los Angeles Basin

Drilling operations in Los Angeles Basin and other southern California fields are limited to a few wildcats being drilled and normal development in existing fields. There is no great amount of drilling under way in any special field as what drilling is being done is general in scope. Buena Park and Turnbull Canyon, the last two discoveries in Los Angeles Basin, are being developed slowly and there is nothing to indicate any change in the present rate of work. Texas Co. has spudded in its fourth well in the Buena Park field of Orange County, which the company discovered last year, and drilling is being resumed again after landing surface pipe. This new well, 1-F Buena Park, is located on a line between the most westerly producing well in the field and the discovery well and may be considered as being within proved territory. The new well is slightly off line and this may have some effect on resulting production. Out of three wells already drilled at Buena Park, Texas Co. has two small producers and one dry hole. The productive interval in this field is the equivalent of the Bell zone of Pliocene age in the Santa Fe Springs field, but the entire section appears to have been severely reduced as it approaches the Buena Park area. At Turnbull Canyon, Continental Oil Co. is preparing to set surface pipe in its fourth well on the Turnbull Community lease. The company's last work in this field was the deepening of the discovery well to 3,670 ft. and it was returned to production pumping 150 bbl. of 27.6-gravity oil per day.

LOS ANGELES BASIN COMPLETIONS

Brea Olinda, Orange County: Shell Oil Co., Inc. 23 Orange, 2-3s-10w, pumped 120 bbl., 24.5-gravity, 7 per cent cut, T.D. 6,379 ft., P.B. 5,250 ft., perf. 4,509-5,188 ft., 5,221-45 ft., formation test 6,269-6,379 ft. recovered salt water, plugged bottom and completed in Puente zone of Miocene age.

Huntington Beach, Orange County: Signal Oil & Gas Co. 35 Bolsa, 33-5s-11w, pumped 135 bbl., 24.7-gravity, 0.3 per cent cut, T.D. 4,024 ft., P.B. 3,950 ft., completed Bolsa zone of Pliocene age.

Standard Oil Co. 38-A H.B., 3-6s-11w, pumped 145 bbl., 16.5-gravity, 3 per cent cut, T.D. 3,700 ft., P.B. 3,620 ft., gravel packed perf. 3,212-3,619 ft., gray water sand in bottom of hole, completed in Bolsa zone of Pliocene age.

Montebello, Los Angeles County: Standard Oil Co. 92 Baldwin, 6-2s-11w, pumped 30 bbl., 22.5-gravity oil and 77 bbl. water, T.D. 2,800 ft., perf. 1,946-2,799 ft., completed in upper Montebello zone of Pliocene age.

Turnbull Canyon, Los Angeles County: Continental Oil Co. 1 Turnbull Community, recompleted pumping 149 bbl., 27.8-gravity, 3 per cent cut, T.D. 3,670 ft., perf. 3,377-3,447 ft., 3,450-3,670 ft., deepened from 3,447 ft. to 3,670 ft. and recompleted in same zone.

Wilmington, Los Angeles County: Long Beach Oil Development Co. 34-W Harbor, 10-5s-13w, pumped 237 bbl., 17.5-gravity, 0.5 per cent cut, T.D. 3,933 ft., P.B. 3,805 ft., perf. 3,006-3,280 ft., 3,584-3,694 ft., 3,738-3,800 ft., completed in upper and lower Ranger zone of Miocene age.

Yorba Linda, Orange County: Shell Oil Co. 87-16 Olinda fee 4, 16-3s-9w, flowed 74 bbl., 18.2-gravity, 5 per cent cut, 23/64-in. bean, pressures 100/300 lb., T.D. 2,115 ft., P.B. 1,951 ft., perf. 1,620-86 ft., 1,711-1,945 ft., completed in Yorba Linda zone of Pliocene age.

Ventura Avenue Well May Be Shut In Due to Limited Storage Space

As had been expected, the OPC cracked down on the Alliance Petroleum Co. for permitting its well, 5 Hisey, in the Ventura Avenue field, to flow at a rate greatly in excess of its allotment.

(Continued on Page 90)

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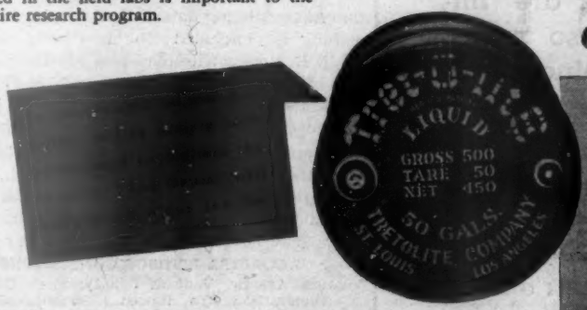

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EASTERN TEXAS

Preparations Under Way to Test Cherokee County Deep Wildcat

By W. D. THORN

DALLAS, Tex.—Critical depth had been reached at the end of last week by Magnolia Petroleum 1 Braly, deep wildcat on the Mixon prospect in northern Cherokee County. It topped the Pettit lime zone at 8,615-25 ft., elevation 403 ft., and cored to 8,740 ft. where it was conditioning hole for a drill-stem test.

Magnolia apparently chalked up a third failure in the one-well Concord field, Anderson County. The company's 2 Campbell, ¼ mile northeast of the discovery well, logged Austin chalk from 4,290-4,594 ft., elevation 554 ft., was drilling below 4,698 ft. in sandy shale. The discovery well topped Woodbine sand at 4,522 ft. Failures previously have been drilled to the southwest and to the northwest.

Joaquin Gas Pool Well Makes Flow of Oil

Prospective crude-oil production in the Joaquin gas field, northern Shelby County, held interest last week, although previously some wells in the field have accumulated heads of oil, with the oil production ceasing when placed on steady production. Southern Production Co. 1 S. E. Lambert, in the S. O. Pennington Survey, cemented 7-in. pipe at 5,159 ft., total depth 5,161 ft., after showing an estimated 10,000,000 cu. ft. of gas daily on drill-stem test at 4,980-88 ft. Log indicated gas zone from 4,980-90 ft. and salt water at 5,052-5,102 ft. After drilling plugs and perforating casing at 4,974-5,044 ft. and acidizing with 1,000 gal., it tested 50,000,000 cu. ft. of gas daily. The well was killed and a drill-stem test taken on the same perforations resulted in a flow of 66 bbl. of oil and 6 bbl. of brackish water in 15 hours, with testing still under way.

EAST TEXAS COMPLETIONS

Cayuga field, Anderson County: Southwestern Drlg. Co. and J. R. Bunn C-1 Royal & Cone, Thos. Bristow Sur., pay 4,027 ft., flowed 51 bbl., ⅛-in. choke, T.D. 4,033 ft.

Chapel Hill field, Smith County: Sinclair Prairie 2 O'Neal, J. S. McDonald Sur., perf. 8,146-79 ft., acid 4,000 gal., flowed 553 bbl., ¼-in. choke, gravity 42, T.D. 8,382 ft.

Sinclair Prairie 1 E. B. Smith et al, C. M. Hyde Sur., perf. casing 8,132-70 ft., acid 4,000 gal., flowed 237 bbl., ¼-in. choke, gravity 42.3, T.D. 8,360 ft.

Coke field, Wood County: Amerada 2 Foster unit, B. Smith Sur., elev. 514 ft., perf. 6,270-6,349 ft., flowed 127 bbl. on ¼-in. choke in 6 hr., gravity 27.3, T.D. 6,357 ft.

(Continued on Page 94)

California Fields

(Continued from Page 88)

Just what will be done about the matter remains to be seen because Hisey claims he is afraid to shut down the well because of its high pressure which has been averaging from 4,000 lb. to 4,500 lb. on the tubing and casing. Petroleum Coordinator Ickes had wired Hisey that "the flagrant wasteful rate of production in 5 Hisey is inexcusably dissipating strategic oil and gas reserves which can readily be a deciding factor in winning the war." In addition to ordering the Alliance Petroleum to curtail production of the well to the October allowable schedule, Mr. Ickes warned refiners and marketers that they cannot handle the oil produced by a well in violation of Recommendation 19. For the past month Hisey has managed to dispose of some production but is now storing his oil in rented tanks. The well in question is believed to have found a new productive zone in the Ventura Avenue field and if such proves to be the case the discovery will appreciably increase the future reserves of the field. It is generally believed that 5 Hisey will be shut in immediately as it will be difficult to secure additional tankage and trucking companies will be obliged to stop hauling what is referred to as hot oil.

R. E. Havenstrite's 2 Barnes, in the Del Valle field of Los Angeles County, remains an interesting undertaking, and one that is being watched with considerable interest by operators, especially those having acreage in the so-called Newhall-Castaic region. The well is interesting since Havenstrite has apparently found a new deeper productive zone in rocks of upper Miocene age. This new zone, which may influence future drilling and production activities in the coastal district, was topped at 7,866 ft. and on a formation test at 7,866-7,975 ft. the well flowed at a daily rate of 3,500 bbl. of 41.9-gravity oil and 7,000,000 cu. ft. of gas. Estimates of the flow during the formation test vary somewhat, although it is generally agreed that the new Havenstrite zone has plenty of kick and the ability to flow at a good rate. Not all of the formation between 7,866 ft. and present depth, 8,225 ft. consists of saturated oil sand, but there is enough sand below the formation depth test to justify the expectation of completing an excellent flowing well when drilling is concluded. The new zone discovered by R. E. Ravenstrite may possibly be the equivalent of the Porter zone discovered by Tide Water Associated Oil Co. in the Aliso Canyon field and the lower Lechler zone which Western Gulf Oil Co. found in the Oak Canyon field. If this proves true the discovery may greatly influence all other fields in the immediate district as it tends to indicate that deeper drilling in other similar fields may be productive of the same results.

COASTAL DISTRICT COMPLETIONS

Ventura Avenue, Ventura County: Shell Oil Co. 147 Taylor, 20-3n-23w, flowed 1,395 bbl., 38.3-gravity, 0.5 per cent cut, 620,000 cu. ft. gas, 30/64-in. bean, pressures 400/650 lb., T.D. 9,700 ft., perf. 8,062-9,699 ft., completed in Lloyd zone of Pliocene age.

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OKLAHOMA FIELD REPORT

Okfuskee County Wildcat Has Large Flow From Hunton Lime

By CARL HOOT

THE slowup in completions for Oklahoma was overshadowed by wildcat developments over the past 2 weeks. What appears to have been an important strike, Mid-Continent's new pool opener in western Okfuskee County, 1 Reed, NW SE 30-12n-7e, on last report was flowing an estimated 100 bbl. of oil an hour before being shut in for connections. Pay zone is Hunton lime at 4,240-59½ ft.

Southern Oklahoma Wildcat Tests Springer Sand

Six miles south of Ardmore and about 3 miles east of the Brock pool, Noble Drilling Co. 1 Joliff, NE NW NW 24-5s-1e, flowed an estimated 35 bbl. of oil an hour on drill-stem test in the Springer sand at 3,199-3,232 ft. A number of wells have been drilled to the 4,000-ft. level in this area, but none was productive. The 1 Joliff is located on what is known as the Overbrook anticline, described by the Oklahoma Geological Survey in Bulletin 40, Vol. 3. This anticline lies on the same northwest-southeast trend as do a great many of the existing pools in southern Oklahoma.

In the Velma area of southeastern Stephens County, Gulf Oil Corp. 1 Spears, a wildcat in SW cor. 14-1s-5w, flowed 85 bbl. of oil a day in sandy lime at 1,875-1,945 ft. The well was drilled to 2,425 ft. and plugged back to 1,971 ft. The Velma pool and the spotted production north of it is an old area, with over 600 wells on the pump.

In Coal County, W. A. Delaney 1 Gipson, a wildcat in SW SE NE 7-1n-8e, flowed 125 bbl. of 42-gravity oil a day in Hunton at 3,713-24 ft. The flow was made through ⅞-in. choke on tubing. Total depth was 4,611 ft. It adds a second pay to the field as well as extending the eastern tip. Previous production has been from Simpson and Wilcox sands at an average depth of 4,550 ft.

Three New Oil Pools Named

At a recent meeting of the Oklahoma Nomenclature Committee the following field names were recommended: In Marshall County, the name Aylesworth was given to the new pool discovered by H. F. Potts 1 Neff-Godfrey, NE SE 13-6s-6e. The well was completed in September for 105 bbl. a day in the Tulip Creek formation at 3,100-3,230 ft. South Crescent was the recommended name for Gulf Oil Corp. 1 Pulliam, NE NE 20-16n-4w, Logan County, which was completed in July for 235 bbl. of oil in 6 hours in Simpson dolomite at 5,600 ft. The third pool was Guthrie Townsite, discovered by Sunray Oil Co. 1 Welch, NW SE 7-16n-2w, located at the northwestern edge of the town of Guthrie and which produced 155 bbl. in 5 hours through tubing choke. Pay zone was Layton sand at 5,220-50 ft.

Fields Combined

The committee also recommended that the Hotulke, West Hotulke and West Earlsboro pools be combined and called Hotulke-West Earlsboro. The Hotulke pools, producing from Viola and Hunton limes, have long since been joined by producing wells and during the latter part of the summer a number of Earlsboro sand wells were found in the Hotulke area, extending it to the north and adjoining the West Earlsboro field.

OKLAHOMA COMPLETIONS

Wildcats

Coal County: W. A. Delaney 1 Gibson, SW SE NE 7-1n-8e, flowed 125 bbl., Hunton 3,713-24 ft., T.D. 4,611 ft.

McIntosh County: W. H. Beckham, NE SE 3-12n-16e, dry, T.D. 2,826 ft., Booch 1,145-75 ft., sand 2,825-26 ft.

Oklahoma County: Callicotte & Kroeger, NE SW SW 6-13-1w, dry, T.D. 750 ft.

Stephens County: Gulf 1 Spears, SW cor. 14-1s-5w, flowed 85 bbl., sandy lime 1,875-1,945 ft., T.D. 2,425 ft.

Tillman County: Harper-Knappenberger 1 Walker, SW cor. 6-2s-14w, dry, T.D. 2,480 ft., Ellenburger 2,380 ft.

Fields

Cement, Caddo County: Phillips Pet. 5 Fletcher, E½ NW NW 34-6n-10w, 5,000,000 cu. ft. gas, pay 5,040-5,140 ft., T.D. 6,546 ft.

Langston, Logan County: Easton et al 3 Smith, SW NE NW 13-17n-1w, flowed 36 bbl., Misener 4,908-40 ft., T.D. 5,181 ft.

Lucien, Northeast, Noble County: Danciger 1 Plumer, SE NE 5-20-2w, flowed 55 bbl., Misener 5,202-70 ft., T.D. 5,482 ft.

Pauls Valley, Garvin County: Pure 1 Campbell-Maxey, SE NW NE 36-4n-1w, flowed 300 bbl., sand 3,859-3,950 ft., T.D. 4,103 ft.

Velma, Stephens County: Skelly 37 Selby, SE NE SE 26-1s-5w, dry, T.D. 1,300 ft.

Miscellaneous

Creek County: Sinclair Prairie 42 Richfield, NW NE 21-17n-7e, pumped 6 bbl., Bartlesville 2,728-2,807 ft., T.D. 2,893 ft.

Osage County: Sagamore Oil 414, SW NW NW 15-26n-12e, 2,000,000 cu. ft. gas, Oswego 795-814 ft.

Pawnee County: J. A. Green 1 Diehnel, SE NW 17-21n-7e, pumped 12 bbl., Bartlesville 2,630-68 ft.

G. E. Marble 1-A Anglin, W½ SW NW 31-21n-8e, dry, T.D. 2,444 ft.

Southwest Texas

(Continued from Page 82)

Seguin Sur., 1 mi. S of Falls City, dry at 2,509 ft.

Williamson County: H. C. LeFors 1 F. Kutzachback, P. J. Mahon Sur., 5 mi. NE of Taylor, dry in serpentine at 762 ft.

Herman Plath 1 Buertz-Freels, W. Cartwright Sur., 3 mi. SE of Thrall, dry in chalk at 1,280 ft.

J. E. Schultz 1 Carl Almquist, Silas Plamer Sur., 6 mi. NW of Taylor, dry at 1,304 ft.

Fields

Campana, South, McMullen County: Texas 2 fee, 64 bbl. on ¼-in. choke, T.P. 750 lb., C.P. 1,050 lb., gas-oil ratio 1,540:1, T.D. 3,027 ft.

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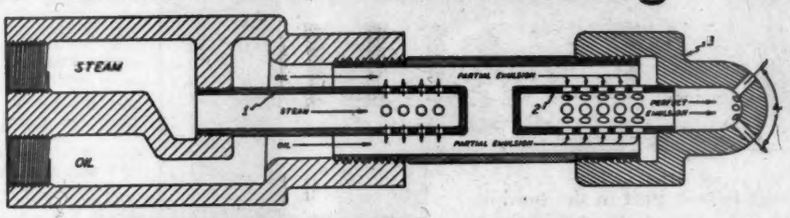

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MICHIGAN OPERATIONS

Intensive Search for Gas in Clare County Scheduled

By OTTO C. PRESSPRICH

SAGINAW, Mich.—Intensive natural-gas development for the Redding Township section of Clare County was indicated last week as the state Conservation Department issued five permits to Taggart Brothers Co. for tests in Sections 3, 4 and 6. New permits kept pace with completions for that week as operators announced six new producing oil wells and two gas wells, while six other tests were given up as dry holes. The 14 new permits, bringing the year's total to 457, are for locations in 10 counties. In addition to the five for Clare they go to two locations in Bay County, two to Ottawa, one each to Gladwin, Arenac, Kent, Allegan, Lake, Ionia and Isabella.

Value of oil and gas produced in Michigan in August, the state Revenue Department revealed, set a record for the year, along with production. August production on which the severance tax is paid totaled 1,989,844 bbl. and 1,022,444,624 cu. ft. of gas. Total well head value was fixed at $2,896,163.78, the 2 per cent tax bringing $57,923.38 for state and counties.

Reed City Field

Three more wells are being planned as followups to the E. L. Bennight gusher which has revived interest in the north end of the Reed City field. Drilling has been held up on the McClanahan 1 Milligan wildcat in Section 3 of Augres Township, Arenac County, because casing must be reset to seal off water above the pay formation.

Oil men saw prospects of a more extensive area of deep pay production in the Roscommon area when the E. V. Hilliard A-5 State hit a pay formation at 4,900 ft. It is a mile northwest of Traverse production. The Hilliard deep test was continued on test.

Pure Oil Co. stopped operations at 4,733 ft. on its 1 Kasen deep test in Barton Township, Newaygo County, and in LeRoy Township, Osceola County, the E. R. Roach, Inc., 1 Swanson-Lindstrom wildcat in Section 2 was dry at 4,001 ft.

MICHIGAN COMPLETIONS

Allegan County, Dorr Township: Thomas Fensom 1 Pawlowski-Rebeske, NW SW SE 34-4n-12w, wildcat, dry, T.D. 1,603 ft.

Arenac County, Deep River Township: Arenac Oil & Gas Co. 1 Bullock, C NW 21-19n-4e, dry, T.D. 1,512 ft.

Bay County, Kawkawlin Township: Chapman Oil Co. 1 Wendt, C S½ SE SW 34-15n-4e, pumped 90 bbl., acidized, T.D. 2,920 ft.

Gulf Ref. Co. 1 Blohm, C S½ NE SW Sec. 28, pumped 60 bbl., acidized, T.D. 2,947 ft.

Monitor Township: Basin Oil Co. 2 Porter communitized, C S½ NE SE 2-14n-4e, pumped 85 bbl., acidized, T.D. 2,855 ft.

Clare County, Winterfield Township: Taggart Bros. Co.

(Continued on Page 94)

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Mexican Crude Production Decreases to New Low Level

Production of Mexican crude oil declined to a daily average of 71,038 bbl. in September, the lowest rate recorded there in several years.

All fields in the country declined. Poza Rica dropped from a daily average output of 53,668 bbl. daily in August to 51,093 bbl. in September. A year ago, the Poza Rica field was producing 57,029 bbl. daily.

Properties under management of Petroleos Mexicanos, the government oil agency, produced at the daily average rate of 94,494 bbl. in September 1941, a figure which corresponds with that of 70,038 bbl. daily this year. Production by fields in September and August follows:

(Figures in barrels)

Field—	Sept.	Aug.
North Tampico	81,531	174,711
South Tampico	111,025	129,260
Poza Rica	1,532,816	1,663,711
Isthmus area	405,762	432,022
Total	2,131,134	2,399,704
Daily average	71,038	77,410

Illinois Fields

(Continued from Page 84)

NW SE 35-6s-5e, dry, T.D. 3,420 ft., Aux Vases 3,234 ft., McClosky 3,282 ft.

Ohio Oil 5 Moore, NE NE NW 35-6s-5e, pumped 11 bbl., Aux Vases 3,286-92 ft., T.D. 3,369 ft., shot 3,287 ft.

Magnolia 5 Hamilton, SW SE SW 24-6s-5e, pumped 109 bbl. natural, Aux Vases 3,112-23 ft., T.D. 3,129 ft.

Pure Oil 2 Cox, SE SE NE 12-6s-5e, pumped and flowed 544 bbl., Aux Vases 3,128-31 ft., T.D. 3,240 ft.

St. Paul, Fayette County: H. L. Uttrell 3-B Aukamp, NW SW SE 30-5n-3e, pumped 76 bbl., Benoist 1,896-1,907 ft., T.D.

South Lawrence, Lawrence County: Moindia Oil 6 Hershey, SW SE SE 27-2n-12w, pumped 60 bbl., Biehl 1,430 ft., Bethel 1,979 ft., T.D. 1,985 ft.

Olds Drilling 3 Van Wey, NW SE SE 23-2n-12w, pumped 100 bbl., Biehl 1,373-83 ft., T.D. 1,389 ft.

South Maunie, White County: Magnolia 15 Sisson-Higgens, SE NE SE 24-6s-10e, pumped 45 bbl., sand 2,260-65 ft., T.D. 2,274 ft., shot 2,266 ft.

Storms, White County: Pure Oil 1 Pyle, NW SE SE 18-6s-9e, pumped 404 bbl., sand 2,745 ft., 120 qt. 2,753 ft., T.D. 2,793 ft.

Strington, Richland County: Heimerich & Payne 1 Almon, S½ NW SE 31-5n-14w, dry, T.D. 3,039 ft., McClosky 3,025 ft.

Walpole, Hamilton County: Nash Redwine 1 Irvin, E½ SE NW 35-6s-6e, pumped 311 bbl., Aux Vases 3,134 ft., T.D. 3,149 ft.

Woodlawn, Jefferson County: Shell 7 Burkhart, NW NW NE 35-2s-1e, pumped 20 bbl., Benoist 1,992 ft., T.D. 2,023 ft.

Miscellaneous, Hamilton County: Magnolia 1 Travis, E½ NW SE 20-4s-7e, pumped 648 bbl., Aux Vases 3,271-3,301 ft., T.D. 3,459 ft.

APPALACHIAN FIELDS

Location Staked for Test On Blackwater Anticline

PITTSBURGH, Pa.—An interesting test which approaches the Appalachian frontier is being started by one of the major companies. In Dry Fork district, Tucker County, West Virginia, the Ohio Oil Co. is moving in for a test on the S. M. Kaemmerling tract (West Virginia Power & Transmission Co.), about 5 miles due southeast of the town of Davis and on Cabin Mountain. It starts at a surface elevation of 3,346 ft. on the axis of the Blackwater anticline and on the Davis quad is located ¼ miles south 39° 5′ and 3½ miles west 79° 20′. The folio places the axis at 5,000 ft. above the upper Freeport Coal. On the road map it is slightly east of West Virginia Route 32.

SOUTHWEST PENNSYLVANIA

On Chestnut Ridge in South Union Township, Fayette County, Greensboro Gas Co. ran casing to 6,828 ft. in 3 Barton with chert reported at 6,784 ft. (Onondaga), but after drilling ahead to 6,905 ft. it is believed now that the tools are still in a lime formation and that the chert has not been reached. The lime formation has not been identified as Onondaga. Here this company is drilling at 7,148 ft. in 2 Barton.

On this structure New Penn Development Co. and William E. Snee deepened 4 Heyn, a good Onondaga chert gas well, to 6,723 ft. with the top of the Oriskany sand at 6,646 ft. There was no gas in the Oriskany sand and only about 200,000 cu. ft. added gas in the Onondaga chert. No. 2 Indian Creek Coal Co. was drilling at 1,880 ft. after reaming to reset a casing string.

On Laurel Ridge in Ligonier Township, Westmoreland County, New Penn Development Co. and William E. Snee were drilling at 6,871 ft. in the deep test on the John and Eleanor Beck farm. The formation is black with some pyrites showing, but has not been correlated with the Indiana Savings & Trust test. It is believed running high.

SOUTHWEST PENNSYLVANIA COMPLETIONS

Armstrong County, Kiskiminitas Township: Peoples Natural Gas Co. 1 D. M. Schaeffer, dry, through Bradford sand, T.D. 2,966 ft.

Kittanning Township: James Wright 1 fee, 103,000 cu. ft. gas, gas 1,395 and 3,433 ft., T.D. 3,500 ft.

Plum Creek Township: Peoples Natural Gas Co. 1 James George, 378,000 cu. ft. gas 1,139 ft., R.P. 330 lb., T.D. 1,147 ft.

Clarion County, Porter Township: T. W. Phillips Gas & Oil Co. 2 T. C. Blair, 15,000 cu. ft gas, T.D. 2,820 ft.

Fayette County, Nicholson Township: Wahler-Powers Oil & Gas Co. 1 McKeefry Coal Co., dry, T.D. 1,914 ft.

Greene County, Jefferson Township: George Gray & Son 1 Sadie Bonnell, 403,000 cu. ft. gas, Gantz sand 2,373 ft., gas 2,393 ft., T.D. 2,402 ft.

Monongahela Township: L. J. Houze Convex Glass Co, 2 E. R. Gabler, deepened, 350,000 cu. ft. gas, started 1,614 ft., Gantz 2,065-85 ft., gas 2,067 ft., T.D. 2,300 ft.

Greensboro Gas Co. 1 Elizabeth Barb, dry, T.D. 670 ft.

Washington County, Somerset Township: Manufacturers Light & Heat Co. 2 C. W. Winnett, dry through Fifth sand, T.D. 3,104 ft.

WEST VIRGINIA

In Grant district, Ritchie County, Benedum & Trees reached a total depth of 7,315 ft. in the deep test on the L. J. Rinehart farm and will plug it as a dry hole. The Oriskany was void and the Newburg horizon was not found. These operators will try a second test near the No. 1 to pick up the shallow gas.

In Meade district, Tyler County, Benedum & Trees were drilling by tools lost at 5,620 ft. on the Pearl Broadwater farm with about 33 ft. to go. The total depth of this hole is 6,470 ft. In Spring Creek district, Wirt County, operators have cemented back and were drilling out at 5,169 ft. in the test on the Park Smith farm. In Union district, Pleasants County, the test on the W. W. Campbell farm was shut down at 5,338 ft., cementing. In Reedy district, Roane County, the test on the H. C. Criner farm was drilling at 1,550 ft. with a fair showing of gas in the second Salt sand.

WEST VIRGINIA COMPLETIONS

Boone County, Scott district: Sayre Oil & Gas Co. 5 Skinner & Zerkies, 84,000 cu. ft. gas, Big lime 1,185-1,405 ft., Berea 1,871-1,906 ft., gas from Big lime and Berea after shot, T.D. 1,906 ft.

Braxton County, Birch district: Pittsburgh & West Virginia Gas Co. 7901 C. N. Snodgrass, 356,000 cu. ft. gas, Salt sand, T.D. 1,615 ft.

Calhoun County, Sherman district: Hope Natural Gas Co. 1 J. E. Bigler, 133,000 cu. ft. gas in the Big lime.

Clay County, Henry district: Clay Gas Co. 7 Adena Corp., 57,000 cu. ft. gas in Injun sand, Big lime 1,735 ft., T.D. 1,799 ft.

Gilmer County, Center district: Carnegia Natural Gas Co. 1573 G. W. Neely and Ella Furr, 636,000 cu. ft. gas, Big Injun 1,941-2,020 ft., gas 1,988-2,020 ft., shot 1,987-2,020 ft., R.P. 600 lb., T.D. 2,039 ft.

South Penn Natural Gas Co. 3 T. M. Marshall, 445,000 cu. ft. gas, second Salt sand, T.D. 1,423 ft.

Glenville district: W. H. and L. E. Mossor 1 L. D. and M. Edwards, dry through Injun sand, no Berea, T.D. 2,482 ft.

Kanawha County, Big Sandy district: Falling Rock Producing Co. 75 fee, deepened, 150,000 cu. ft. gas, Berea, T.D. 1,980 ft.

Cabin Creek district: South Penn Natural Gas Co. 8 Coalburg Colliery Co., 296,000 cu. ft. gas after shot, Big lime 1,993 ft., Weir 2,300 ft., Berea 2,653 ft., T.D. 2,683 ft.

Elk district: Cameron Producing Co. 1 J. J. Hackney, 133,000 cu. ft. gas, Weir sand, T.D. 2,183 ft.

Logan County, Logan district: South Penn Natural Gas Co. 75 Yawkey-Freeman, 189,000 cu. ft. gas, Berea, T.D. 2,474 ft.

Mingo County, Warfield district: Shewey Collier 2 Tom Waldron, 25,000 cu. ft. gas after shot, Big lime 1,505-1,684 ft., Injun 1,684 ft., Berea 2,195-2,267 ft., T.D. 3,175 ft.

Roane County, Reedy district: O. H. Reed 1 U. J. Young, dry through Berea, T.D. 2,640 ft.

Upshur County, Buckhannan district: Pittsburgh & West Virginia Gas Co. 7877 C. D. Munson, 2,375,000 cu. ft. gas, Fifth sand 2,801-63 ft., gas 2,831-40 ft.

(Continued on Page 95)

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TEXAS GULF COAST

Fourth Producing Horizon Found in Lolita Field

By W. V. HOWARD

HOUSTON, Tex.—A fourth producing horizon was found in the Lolita field of Jackson County last week when Tide Water Associated 1 L-Ranch was plugged back from a total depth of 5,945 ft. and flowed 14 bbl. an hour from a sand at 5,716-20 ft. Working pressure of 775 lb. was reported on drill-stem test and tubing is now being run for a completion. Other producing sands in Lolita are at 5,200, 5,900 and 6,400 ft.

In Austin County, 3 miles southeast of Orange Hill, Ohio Oil Co. was testing showings in 1 Roy Kaechele in V. Flores Survey. The well was drilled to 10,110 ft. in the Wilcox and casing was set at 9,411 ft. The first sand to be tested is at 9,307-11 ft. and casing has been perforated at this level.

Two new wildcats are reported in the coastal area in Fayette and Jackson counties. The former is Coastal Refining Co. 1 J. R. Faison, in the P. Breedy Survey and the Jackson County test is Humble 1 San Antonio Joint Stock Land Bank in the C. Lasso Survey.

General Crude Oil Co.'s Wharton County test, 1 S. L. Houston in the S. Castleman Survey, is drilling below 5,650 ft. It found the small Discorbis zone at 5,010 ft., large Discorbis at 5,105 ft., and the Heterostegina zone at 5,165 ft.

In the Fig Ridge area of Chambers County, Sun 1 C. Doornbos, T.&N.O. Survey, Section 83, was running 6-in. casing at 8,340 ft. after several side-wall cores had been taken. This is 120 ft. above the regular pay in the field, which produces from the Frio.

Activity in the district is declining and the abandonment of six wildcats this week does not afford encouragement for much upturn in the near future. Although most interest is centered on the Wilcox trend, four of the abandoned holes were in this sector.

TEXAS GULF COAST COMPLETIONS

Wildcats

Grimes County: H. L. Hunt 1 J. R. Yeager, A. Long Sur., 3 mi. SW of Gross, Cook Mountain 375 ft., Sparta 850 ft., Weches 1,130 ft., Queen City 1,340 ft., Reklaw 1,520 ft., Wilcox 1,810 ft., Midway 5,120 ft., dry at 5,345 ft.

Jackson County: J. A. Gray-J. G. Mayo 1 O. E. Cound, William Whitaker Sur. A-79, 2 mi. E of Morales, dry at 4,670 ft.

Montgomery County: G. W. Strake 1 Guaranty State Bank, Timothy Sur. A-12, top Wilcox 7,009 ft., dry at 10,508 ft.

G. W. Strake 1 T. J. Peal, Owen Shannon Sur. A-10, 4 mi. E of Montgomery, dry at 8,566 ft.

Tyler County: Dishman & Lucas et al 1 Angelina Lumber Co., B. Burton Sur. A-8, 5 mi. NW of Town Bluff, Massailina Pratti 2,645 ft., Text. Hockleyensis 2,765 ft., Text. dibollensis 2,981 ft., Operculina 3,164 ft., Cockfield 3,240 ft., Ceratobulimina 4,308 ft., Wilcox 5,635 ft., dry at 6,519 ft.

Wharton County: Pan American Prod. Co. 1 Axel Ekvall, S. P. Middleton Sur. A-260, 2 mi. NW of Conroe, dry at 6,253 ft.

Fields

Danbury, Brazoria County: Humble 1-B B. Blakely, H.T.&B.R.R. Sur., Sec. 14, 132 bbl. through ¼-in. choke, T.P. 350 lb., C.P. 1,000 lb., gas-oil ratio 180:1, perf. 5,647-54 ft., T.D. 5,830 ft.

Esperson, Liberty County: General Crude Oil 2 Pure fee, G.C.&S.F. Sur., Sec. 23, A-457, 475 bbl. through ¼-in. choke, T.P. 850 lb., C.P. 950 lb., gas-oil ratio 486:1, T.D. 9,285 ft.

Francitas, Jackson County: Skelly 1 Carl Millius, J. D. Newell Sur. A-61, 72 bbl., 2 per cent salt water through 3/32-in. choke, T.P. 1,200 lb., C.P. 1,315 lb., gas-oil ratio 1,178:1, perf. 7,403-05 ft., T.D. 8,000 ft.

Mayo, Jackson County: Texas 2 B. Simicek, M. L. York Sur. A-313, 111 bbl. through ⅛-in. choke, T.P. 680 lb., gas-oil ratio 450:1, perf. 5,325-38 ft., T.D. 5,557 ft.

North Bay City, Matagorda County: Ohio 1 E. L. McDonald, Acct. 2, J. Betts Sur. A-7, 312 bbl. through ¼-in. choke, T.P. 425 lb., C.P. 1,025 lb., gas-oil ratio 913:1, top gas-distillate sand 8,317 ft., oil sand 8,404 ft., salt water 8,414 ft., gas-distillate also at 8,711 ft., pay sand 7,864-76 ft., T.D. 8,846 ft.

Eastern Texas

(Continued from Page 90)

Amerada 3 C. B. Kennemer, Jos. Knight Sur., elev. 495 ft., perf. casing 6,316-38 ft., flowed 77 bbl. on ¼-in. choke in 6 hr., gravity 26.8, T.D. 6,360 ft.

Amerada 4 C. B. Kennemer, Jos. Knight Sur., elev. 495 ft., perf. casing 6,296-6,340 ft., flowed 78 bbl. on ¼-in. choke in 6 hr., gravity 26.5, T.D. 6,345 ft.

Amerada 1 G. A. McCreight, M. Y'Barbo Sur., elev. 497 ft., perf. casing 6,285-6,332 ft., flowed 126 bbl. in 6 hr. on ¼-in. choke, gravity 27, T.D. 6,342 ft.

General American Oil Corp. 1 C. L. Skeen et al, M. Y'Barbo Sur., elev. 520 ft., top oil sand 6,336 ft., top water sand 6,374 ft., perf. 6,336-60 ft., flowed 135 bbl. 24 hr., ¼-in. choke, gravity 26.8, T.D. 6,342 ft.

Hawkins field, Wood County: Humble Oil & Refining Co. 9 M. A. Kay, J. C. Burdette Sur., elev. 380 ft., perf. 4,651-67 ft., flowed 310 bbl. 18 hr. on ¼-in. choke, T.D. 4,830 ft.

Humble Oil & Refining Co. 5 W. R. Parrish, H. E. Watson Sur., elev. 399 ft., dry, no sand, T.D. 4,542 ft.

Michigan Fields

(Continued from Page 92)

106 Goodrich-Crane, C SE 31-20n-6w, 2,350,000 cu. ft. gas, T.D. 1,331 ft.

Taggart Bros. Co. 105 Wittmill-Hackthorn-Austin, C SE Sec. 31, 6,550,000 cu. ft. gas, T.D. 1,344 ft.

Kent County, Walker Township: Muskegon Development Co. 1 Newhouse et al, C W½ SW 6-6n-12w, pumped 25 bbl., acidized, T.D. 1,866 ft.

Lake County, Sauble Township: Gordon Oil Co. 2 Myers estate, NE SE SW 16-19n-14w, 30 bbl., salt water, acidized, T.D. 2,152 ft.

Freeman Oil Co. 1 Bortz, C NE NW NW Sec. 27, wildcat, dry, T.D. 1,318 ft.

Livingston County, Osceola Township: H. C. Nelson 1 Walker, SE NW NW 33-3n-5e, wildcat, dry, T.D. 1,130 ft.

Newaygo County, Barton Township: Pure Oil Co. 1 Kasen, C S½ SW SW 22-16n-11w, dry, T.D. 4,733 ft.

Osceola County, LeRoy Township: E. R. Roach, Inc., 1 Swanson-Lindstrom, NE NE SE 2-19n-10w, wildcat, dry, T.D. 4,001 ft.

Richmond Township: Cook & Fortney 1 Wilcox, C N½ NW NE 8-17n-10w, pumped 50 bbl. and salt water, acidized, T.D. 3,560 ft.

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in 8 minutes
The bull reel is gear driven, free wheeling, with two speeds forward and one reverse. The 13⅛" steel barrel is 44½" long with 45" diameter steel flanges. Located at each end are big, wide brakes—two of them with equalizer — each 42" by 6". Bands are faced with ½" asbestos blocks giving smooth, accurate control. Spooling capacity without divider for 4,900' of 1", 6,900' of ⅞", 9,400 of ¾" wire line. Non-kinking divider reduces capacity approximately 6%. Hoisting capacity to 28,900 lbs. in low gear, 13,300 lbs. in high gear. Average line speed 375 ft. per minute in high gear.
CAPACITY To 28,900 lbs.
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Bucyrus-Erie
SOUTH MILWAUKEE, WISCONSIN

LOUISIANA GULF COAST

Shallow Gas Sand Causes Blowout At La Fourche Parish Test

By W. V. HOWARD

NEW ORLEANS, La.—Activity in the Louisiana coastal sector remains at a low level with all of the completions reported last week routine field tests. A great deal of the activity in the area consists of reworking or plugging back wells in depleted sands and six of these plugback jobs were completed last week with good production.

Among the wildcats, Gulf 1 Delta Securities, 1-19-20e, in La Fourche Parish, was having trouble from a gas sand found at 1,145-56 ft. At 1,371 ft. the well lost returns in a probable cavity in limestone and on pulling the drill stem the well blew out from the shallow sand. Also having difficulties, was Union Sulphur Co. 1 J. P. Gneno, 51-8s-2e in Acadia Parish. At a total depth of 10,447 ft. the well caught fire while making an estimated 2,000 bbl. of oil. It then flowed a slug of salt water with extinguished the fire but the well started blowing gas and caught fire again. The gas pressure built up to over 4,000 lb. before the well got out of control.

In St. Landry Parish, Stanolind 1 W. D. Haas, 17-4s-6e, was reported drilling ahead at 10,661 ft. after finding the top of the Wilcox at 10,430 ft.

LOUISIANA GULF COAST COMPLETIONS

Fields

Bayou des Allemands, La Fourche Parish: Amerada 8 Gheens Realty Co., 56-15s-20e, top salt 10,317 ft., perf. 10,220-38 ft., flowed 22 bbl. oil and 83 bbl. water, squeezed perf. 10,174-90 ft., flowed 16 bbl. distillate, abandoned, T.D. 10,317 ft.

Caillou Island, Terrebonne Parish: Texas 37 State-Caillou Island, 18-23-20e, deepened from 4,173 ft. to 5,225 ft., salt 5,111 ft., perf. 4,908-46 ft., flowed 97 bbl. through ⅛-in. choke, T.P. 235 lb., gas-oil ratio 558:1, old well plugged back.

Jennings, Acadia Parish: D. D. Felman 7 G. Trushell, 42-9s-2w, P.B. from 7,625 ft. to 7,000 ft., 15 bbl. distillate and 750,000 cu. ft. of gas through ⅛-in. choke, old well plugged back.

Stanolind 123 Crowley Oil & Minerals Co., 48-9s-2w, dry at 7,892 ft., P.B. 5,400 ft.

Lafitte, Jefferson Parish: Texas 3 George H. Kerner, 22-17-24, 180 bbl. through ⅛-in. choke, T.P. 975 lb., gas-oil ratio 587:1, perf. 8,545-70 ft., T.D. 10,671 ft.

Lake Chicot, St. Martin Parish: Amerada 4 State lease 411, 31-11s-10e, 274 bbl. through ⅛-in. choke, T.P. 1,450 lb., gas-oil ratio 487:1, perf. 8,132-74 ft., T.D. 11,800 ft., P.B. 8,178 ft.

Paradis, St. Charles Parish: Humble 6 Manufacturers Record Pub. Co., 18-14-20e, 324 bbl. through ¼-in. choke, T.P. 1,200 lb., gas-oil ratio 890:1, perf. 10,140-50 ft., T.D. 10,250 ft.

Lake Salvador, St. Charles Parish: Texas 17 State-Lake Salvador, Lake-16s-23e, 194 bbl. through ⅛-in. choke, gas-oil ratio 924:1, perf. 9,940-64 ft., T.D. 10,253 ft.

Neale, Bureagard Parish: Gulf 1 Campbell, 26-3s-11w, 259 bbl. through 5/32-in. choke, T.P. 1,790 lb., gas-oil ratio 1,080:1, top sand 11,055 ft., T.D. 11,222 ft., P.B. to 11,158 ft.

Pine Prairie, Evangeline Parish: Humble 1 I. O. Guillory, 36-3s-1w, 672 bbl. through 10/64-in. choke, T.P. 1,225 lb., gas-oil ratio 857:1, pay 7,983-9,047 ft., T.D. 8,090 ft., P.B. 8,054 ft.

Ville Platte, Evangeline Parish: Continental 3 J. E. and E. Lugeau, Tract 4, 42-4s-2e, P.B. from 10,155-9,906 ft., perf. 9,860-99 ft., flowed 212 bbl. through 13/64-in. choke, T.P. 2,150 lb., C.P. 2,600 lb., gas-oil ratio 9,300:1, old well plugged back.

West Gueydan, Vermilion Parish: Magnolia 5 J. B. Ferguson, Jr., 5-12-2w, 65 bbl. through 12/64-in. choke, T.P. 1,500 lb., gas-oil ratio 14,735:1, T.D. 10,844 ft., P.B. to 10,808 ft., old well plugged back.

West Lake Verret, St. Martin Parish: Shell 4 School Board, 16-8s-7e, P.B. from 7,625-7,500 ft., 190 bbl. through ⅛-in. choke, T.P. 1,500 lb., C.P. 850 lb., gas-oil ratio 920:1, old well plugged back.

Woodlawn, Jefferson Davis Parish: Union Sulphur 5 Calcasieu National Bank, 12-9s-6w, P.B. from 9,801-8,075 ft., 85 bbl. through 18/64-in. choke, T.P. 3,050 lb., gas-oil ratio 67,700:1, old well plugged back.

Appalachian Fields

(Continued from Page 93)

Wyoming County, Slab Fork district: Ravenscliff Development Co. 15 Wyoming Pocahontas Coal Co., 127,000 cu. ft. gas before acidizing Big lime, T.D. 2,698 ft.

ORISKANY GAS FIELDS

Jackson County, Ripley district: West Virginia Gas Corp. 1 K. O. Harrison, 5,736,000 cu. ft. gas, Corniferous lime 4,989 ft., Oriskany 5,086 ft., T.D. 5,120 ft.

United Fuel Gas Co. 5117 V. L. Fisher, 2,441,000 cu. ft. gas shot, Corniferous lime 4,946 ft., Oriskany 5,048 ft., shot 5,064-85 ft., T.D. 5,098 ft.

Godfrey L. Cabot, Inc. 1059 J. L. McLean heirs, 504,000 cu. ft. gas, Corniferous lime 5,110-99 ft., Oriskany 5,199-5,267 ft., shot 5,207-27 ft., T.D. 5,291 ft.

Kanawha County, Union district: Godfrey L. Cabot, Inc. 1039 Adam Burford, 636,000 cu. ft. gas, Corniferous lime 4,730 ft., Oriskany 4,835 ft., shot 4,840-50 ft., T.D. 4,911 ft.

Rocky Mountain Area

(Continued from Page 86)

1 Young, SW SE NE 11-19s-65w, dry in granite at 6,112 ft., no shows.

WYOMING COMPLETIONS

Cole Creek, Natrona County: General Petroleum Corp. 77-21-G, NW SE SE 21-35n-77w, T.D. 4,567 ft., 200 bbl. per day from the Hygiene sand.

Newcastle, Weston County: John Brorphy 1 Hansen, NW NE NW 13-44n-63w, T.D. 3,400 ft., unable to shut off water in Muddy sand at 3,120-95 ft., some saturation in sand at 3,265 ft., plugged and abandoned.

Oregon Basin, Park County: Enalpac Oil & Gas Co. 5 Sarah-OPC, NW NE SE 32-51n-100w, T.D. 3,676 ft., 5½-in. at 3,619 ft., pumped 500 bbl. a day from the Embar.

Wakeman Flates, Crook County: Powers & Farren 1, NE NE NE 16-48n-65w, dry at 1,320 ft.

Devil's Tower Oil Co. (Bradbury et al) 1, SW SW NE 17-49n-66w, T.D. 520 ft., dry in the Wall Creek.

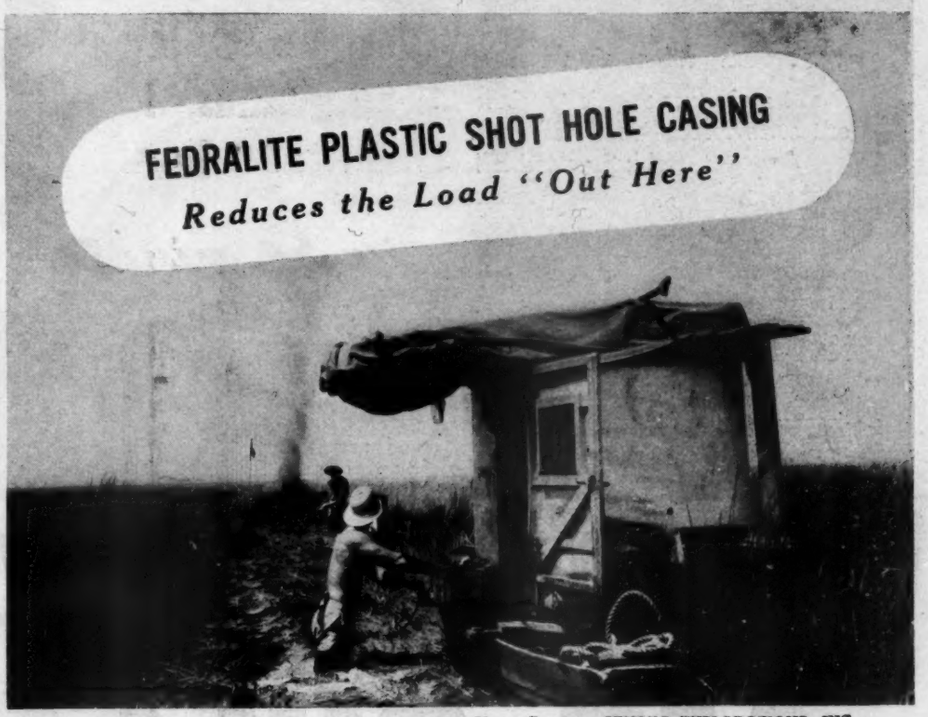
MONTANA COMPLETIONS

Cut Bank, Glacier County: Wilkinson-Potter 5 Allotted-127, SE SE SE 1-32n-6w, T.D. 2,993 ft., 7-in. 2,940 ft., upper Cut Bank sand 2,930-80 ft., no lower Cut Bank, main pay 2,955-60 ft., 100 ft. fluid in hole, shot 80 qt., cleaning out and testing.

Santa Rita Oil & Gas Co. 3 Miller, C SE NW 29-33n-5w, T.D. 3,100 ft., 7-in. 3,065 ft., show of oil in Sunburst at 3,048-55 ft., Cut Bank 3,062-91 ft., swabbed 81 bbl. first 20 hr., then shot 60 qt., cleaning out and testing.

Kevin-Sunburst, Toole County: C. Leonard Smith 3 Government, NE SE NW 13-35n-2w, T.D. 1,549 ft., contact 1,541 ft., acid. 1,000 gal., averaged 7 bbl. daily on 10-day test.

Peterson-Sorenson 2 Government, NE NW SE 18-35n-3w, water at 2,969 ft., dry.



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KANSAS, NEBRASKA

Rooks County Stratigraphic Test Opens New Pool

By CARL HOOT

CONTINENTAL OIL CO. 1 Berry, the Rooks County stratigraphic test that turned out to be a pool opener, was completed last week for the maximum allowable of 3,000 bbl. of oil a day. On pumping test the well made 45 bbl. of oil in 20 minutes. Pay zone is the Arbuckle lime at 3,431-56 ft. Another discovery well completed last week was Westgate-Greenland 1 Lilly, S½ SW SE 30-17-1w, in McPherson County. Potential was 160 bbl. in 8 hours in Mississippian chat at 2,660-70 ft. Location is some 2½ miles south of the Roxbury pool and 2 miles southwest of the Henne pool, both of which produce from the chat so that considerable acreage within the triangular gap made by the new extension will be opened for testing.

Harvey County Wildcat Has a Flow of Oil

H. M. Williams et al 1 Stuckey, SE NE NE 3-23-3w, 4 miles east of the Burton pool, was reported to be flowing both oil and gas, the first shows being found in Lansing lime at 2,480 ft. Gas with spotted oil saturation was found in Mississippi lime from 3,226-71 ft. Total depth was 3,277 ft. When the plug was drilled out at 3,220 ft. it flowed some 50 bbl. of oil and mud, and after acid treatment made 15 bbl. of oil in 24 hours. Operators made a shot in the lime at 2,480 ft. and were preparing for further tests.

Champlin Refining Co. 1 Evers and Great Lakes Carbon Co. 1 Werner, Barber County wildcats, were dry. No. 1 Evers, some 10 miles northwest of the Medicine Lodge oil and gas pool, found Simpson sand at 4,991 ft. and Arbuckle at 5,137 ft. After a shot at 5,003 ft. it swabbed 15 bbl. of 28-gravity oil and 74 bbl. of water in 24 hours. The 1 Werner was dry with no shows reported in Arbuckle lime at total depth of 4,676 ft.

Lindsborg Pool Has First Failures

The Lindsborg pool of McPherson County reported its first dry holes last week. Since the early part of the summer and especially after the discovery of Simpson sand pay, the pool has had a record growth, unmarred by a single failure. However, last week Auto Ordnance 1 Melander, SW NW 9-17-3w, a ½-mile east outpost well, found no shows in either the Viola at 3,339 ft. or the Simpson sand at 3,664 ft. One-half mile south and ¼ mile west of 1 Melander, the same company's 2 Anderson was dry in sand at 3,521 ft.

KANSAS COMPLETIONS

Wildcats

Barber County: Champlin Ref. 1 Ewers, SW cor. 7-32-14w, dry, T.D. 5,174 ft., Lansing 4,200 ft., Mississippi lime 4,715 ft., Viola 4,918 ft., Simpson sand 4,991 ft., Arbuckle 5,137 ft., swabbed 15 bbl. oil and 74 bbl. water, gravity 28, shot 5,003 ft.

Great Lakes Carbon 1 Werner, SE SE 20-30-14w, dry, T.D. 4,702 ft., Lansing 3,993 ft., Viola 4,488 ft., Simpson 4,572 ft., Arbuckle 4,676 ft.

Cowley County: Cities Service 1 Stout, NW NE NE 9-31-6e, dry, T.D. 3,395 ft., sand 1,541 ft., 1,797 ft., Mississippi lime 2,887 ft., Arbuckle 3,323 ft.

Edwards County: Fain Drlg. 1 Roenbaugh, SE NW NW 22-26-17w, abandoned location.

Ellis County: Herndon Drlg. 1 Schmeidler, SE SE SW 16-12-17w, dry, T.D. 3,988 ft., Lansing 3,455 ft., Arbuckle 3,920 ft.

Jefferson County: McLaughlin 1 White, NE SE 8-11-20e, dry, T.D. 1,665 ft., Mississippi lime 1,498 ft.

McPherson County: Westgate-Greenland Oil 1 Lilly, S½ SW SE 30-17-1w, pumped 160 bbl. in 8 hr., Mississippian chat 2,660-70 ft., discovery.

Pawnee County: Stanolind 1 McCambridge, SW cor. 20-22-19w, dry, T.D. 5,365 ft., Lansing 3,817 ft., Mississippi lime 4,455 ft., Arbuckle 4,740 ft.

Rooks County: Continental Oil 1 Berry, NE cor. 11-9-19w, swabbed 45 bbl. oil in 20 min., rated 3,000 bbl. potential, Arbuckle 3,431-56 ft., discovery of Berry pool.

Russell County: Black-Marshall 1-A Fairchield, NE NE NW 36-12-13w, T.D. 3,375 ft., Lansing 2,790 ft., Viola 3,250 ft., Arbuckle 3,370 ft.

Fields

Augusta, Butler County: F. L. Skaer et al 1-A Cunningham, N½ NE SE 16-28-4e, dry, T.D. 2,072 ft.

Chase, Rice County: Skelly 2 Grizzell, SW SE NW 9-19-9w, dry, T.D. 3,243 ft.

Couch, Cowley County: Adair & Morton 2 Kennedy, NE SW SW 12-30-5e, pumped 279 bbl., Bartlesville 2,805-40 ft.

Dayton, Phillips County: Tom Allen 1 Klotz, NW SW 1-3-19w, pumped 435 bbl., Kansas City 3,173-3,214 ft., T.D. 3,220 ft.

Tom Allen 1 Eltiste, NE SE 2-3-19w, pumped 422 bbl., Kansas City 3,129-3,250 ft., T.D. 3,345 ft.

Allen & Cohen 1 Weirman, SE SE 2-3-19w, pumped 460 bbl., Lansing 3,222-44 ft., T.D. 3,248 ft.

Gibson, Cowley County: Sinclair Prairie 2 Wilson, NW NW SW 29-34-3e, dry, T.D. 3,468 ft.

Gorham, Russell County: Harry Gore 1 Roubach, E½ NE NE 16-14-15w, pumped 545 bbl., Lansing 3,030-44 ft.

Haferman, Rice County: Bay Pet. 1 Garden-Smith, NE NE 7-19-9w, dry, T.D. 3,295 ft.

Hall-Gurney, Russell County: Branine & Goreing 2 Driscoll, NW SE SW 27-14-14w, pumped 630 bbl., Gorham sand 3,215-33 ft.

Iuka East, Pratt County: Skelly 2 Beck, SW SW NW 7-27-12w, flowed 237 bbl. in 9 hr., Simpson dolomite 4,242-52 ft., T.D. 4,274 ft.

Kraft-Prusa, Barton County: Skelly 2 Heller, NE NW SE 22-17-11w, pumped 195 bbl., Arbuckle 3,287-3,313 ft.

Laton, Rooks County: Max Cohen 2 Doane, S½ SW SE 34-8-16w, pumped 371 bbl., Lansing 3,094-3,147 ft.

Lindsborg, McPherson County: Mabee Oil & Gas 1 Johnson, W½ SE SW 6-17-3w, pumped 308 bbl., Viola 3,400-18 ft., T.D. 3,421 ft.

M. & L. Oil 2 Hoglund, SE NW 8-17-3w, swabbed 47 bbl. in 1 hr., Simpson sand 3,454-60 ft.

Auto Ardnance 1 Melander, SW NW 9-17-3w, dry, T.D. 3,466 ft., Viola 3,339 ft., Simpson sand 3,464 ft.

McLouth, Jefferson County: V-8 Drlg. 1 Makawski, NE SW 17-9-20e, dry, T.D. 1,605 ft.

E. V. Jackson 3 McLouth Bank, SW NW 20-9-20e, dry, T.D. 1,487 ft.

Hatcher-Fisk 2 Hesse, NW SW 21-9-20e, 11,700,000 cu. ft. gas, Bartlesville 1,445-60 ft.

Peace Creek, Reno County: Cities Service 4 Keesling, SW SE SW 1-23-10w, flowed 173 bbl. in 9 hr., Viola 3,733-37 ft.

Cities Service 1 Endicott, NE SW 14-23-10w, pumped 346 bbl., Viola 3,769-75 ft.

Derby Oil 3 Mothes, NE SE 16-23-10w, pumped 60 bbl., Viola 3,739-56 ft.

Silica, Barton County: Mid-Continent 10 Matzek, N½ NE SE 25-19-11w, pumped 95 bbl., Arbuckle 3,290-95 ft., T.D. 3,311 ft.

Trapp, Russell County: Derby Oil 2 Karst, E½ NE NE 27-15-14w, pumped 46 bbl., Arbuckle 3,351-57 ft.

(Continued on Next Page)

Completions at Third Quarter Remain At 50 Per Cent of Last Year

TOTAL completions in September were up 196 over the month of August. This increase may be accounted for, at least in part, by the fact that September was figured as a 5-week month. However, the number of wells actively drilling increased 43 over the previous month.

Completions for the same period last year were 3,073, or 50 per cent over the 1942 figure. Completions this year dropped rapidly after the first of the year and at the end of the first quarter were down approximately 30 per cent. By June this figure was 40 per cent and since August has remained at a steady 50 per cent decline. Year-ago oil, gas and dry completions were 2,141, 274 and 658, respectively, representing a decline in the number of oil wells of 62 per cent. The number of active wells, which includes rigs and drilling, was 4,046, compared with 2,380 in September, or a decrease of 48 per cent.

SUMMARY OF OPERATIONS, SEPTEMBER 1942

	Comp.	Oil	Prod.	Gas	Dry	Completions: Under 1,000 ft.	1,000-2,500 ft.	2,500-5,000 ft.	5,000-10,000 ft.	Over 10,000 ft.	Footage	Drlg.
Appalachian	306	213	490	74	19	21	231	31	23	0	563,746	315
Ohio	98	15	735	48	35	18	30	50	0	0	242,355	207
Indiana	27	9	665	1	17	6	16	5	0	0	46,377	45
Kentucky	13	2	16	11	0	2	3	8	0	0	40,105	61
Michigan	61	27	3,581	5	29	1	29	30	1	0	152,913	110
Illinois	168	92	14,719	1	75	3	70	95	0	0	420,444	217
Kansas	165	87	43,750	13	65	1	15	146	3	0	543,375	169
Nebraska	4	1	42	0	3	1	1	2	0	0	9,571	16
Missouri, Iowa	0	0	0	0	0	0	0	0	0	0	0	3
Oklahoma	115	55	10,789	11	49	4	28	62	21	0	402,844	190
North Texas	87	36	16,486	2	49	1	28	35	24	0	243,108	73
West Central Texas	20	5	428	2	13	3	7	10	0	0	55,429	37
Northern West Texas	36	36	21,477	0	0	0	3	12	21	0	173,248	50
Southern West Texas	26	15	12,069	1	10	0	7	12	7	0	82,632	55
Texas Panhandle	21	14	2,650	5	2	0	0	26	0	0	69,890	27
East Texas	33	17	2,286	3	13	4	3	12	14	0	175,838	39
Upper Gulf Coast	56	29	4,335	8	19	0	2	8	43	3	352,058	79
Lower Gulf Coast	26	19	2,562	2	5	0	0	0	26	0	170,305	67
South Central Texas	5	0	0	0	5	0	1	1	3	0	27,832	19
South Texas	38	17	2,694	1	20	0	2	29	7	0	149,683	40
Southeast New Mexico	20	18	1,871	0	2	0	1	18	1	0	71,741	54
Arkansas	19	11	1,384	0	8	0	2	4	13	0	115,332	31
North Louisiana	33	14	2,990	5	14	0	5	11	16	1	157,286	58
Louisiana Gulf	42	26	5,767	2	14	0	0	1	23	18	386,648	98
Mississippi	10	2	290	0	8	0	1	4	5	0	51,362	12
Montana	24	11	1,967	9	4	4	13	7	0	0	42,910	81
Wyoming	15	14	4,064	0	1	1	1	10	3	0	57,090	71
Colorado, Utah	5	2	1,247	0	3	1	1	2	1	0	15,699	38
Northwest New Mexico	0	0	0	0	0	0	0	0	0	0	0	12
California	68	46	21,643	0	22	9	17	21	20	1	264,502	106
Alabama	1	0	0	0	1	0	0	1	0	0	3,128	0
Total September	1,542	833	180,097	204	505	80	517	653	275	23	5,087,170	2,380
Total August	1,347	745	180,732	181	421	68	402	615	240	22	4,643,136	2,337
Difference	196	88	265	23	84	12	115	38	35	1	444,034	43

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INDIANA, OHIO, KENTUCKY

Development Under Way in Hovey Lake Field

EVANSVILLE, Ind.—Activity in Indiana continued at a low level during the past week with no important developments reported. In the Hovey Lake pool about 6 miles south of Mount Vernon, the Sohio Producing Co. and Clarence Brehm are testing the Mansfield sand at 1,094-1,115 ft. in the 1 Hardwick, SE SE SE 12-8s-14w. On a test, the operators bailed at the rate of one-half bailer of fluid per hour, mostly oil. The same operators are drilling below 1,545 ft. on the 1 Hagman, SE SW SE 12-8s-14w, after failing to find commercial saturation in the Mansfield sand.

In Owen County, the Sun Oil Co. was scheduled to resume drilling at week's end on the 1 G. E. Chambers, E½ SW SE 23-10n-5w, 10 miles west of Spencer, after partly restoring circulation lost at a total depth of 468 ft.

Sullivan County completions last week consisted of two dry holes. These were the W. F. Sewers 1 W. J. Hugg, SE NW NE 34-8n-10w, 6 miles west of Sullivan, dry at a total depth of 845 ft. and the J. H. Gilliam 1 Cambell-Woodward, SW SW 34-9n-10w, about 9 miles northwest of Sullivan, dry at a total depth of 2,417 ft. The 1 Cambell-Woodward was drilled through the Devonian lime.

INDIANA COMPLETIONS

Gibson County: R. D. Brown 1 Sinkhorn, NE SW NW 36-1s-10w, pumped 50 bbl. natural, pay 1,385-1,400 ft., T.D. 1,413 ft.
R. D. Brown 1 Coleman, SW NE NW 1-2s-10w, dry, T.D. 1,781 ft., McClosky 1,776 ft.
Posey County: P. Rossi 1 William, SE cor. 18-6s-12w, pumped est. 20 bbl. oil and 25 bbl. water, Waltersburg at 1,860 ft.
A. B. Speak, NE NE SE 24-6s-13w, dry, T.D. 400 ft.
Cherry & Kidd 1 Koch-Husband, SE SW SW 8-7s-14w, dry, T.D. 2,944 ft., McClosky 2,836 ft., St. Louis 2,935 ft.
Vanderburg County: T. W. Drake 2 Nurrenbern, SE NE NE 6-7s-11w, dry, T.D. 1,880 ft.

OHIO

ZANESVILLE, Ohio.—The Hinckley pool, Medina County, yielded a 120-bbl. producer in the Little lime after acid treatment last week. The William Dempsey 1 John Ritz, Lot 55, had the bottom of the Big lime at 3,184 ft., with the Little lime at 3,249-66 ft., oil and gas pay at 3,259 ft., total depth 3,289 ft. The Little lime is located just above the Clinton sand.

Another fair gasser is reported on the western edge of the Clayton pool, Perry County. The Pure Oil Co. 2 O. Melick, Section 1, made 2,000,000 cu. ft. gas and a light showing of oil in the Clinton, sand 3,198-3,231 ft., total depth 3,231 ft.

Drilling was stopped at 5,500 ft. after finding only a small gas showing in the Clinton in Union Township, Tuscarawas County. The James Upham et al 1 Benjamin Beans, Section 29, showed only 60,000 cu. ft. gas in the top of the sand; a partial log shows Clinton 5,360-87 ft., top of Red Rock 5,480 ft., total depth 5,500 ft.

OHIO COMPLETIONS

Ashland County, Lake Township: I. C. Robinson et al 1 C. Derrenberger, Sec. 16, 1,400,000 cu. ft. gas, Clinton, T.D. 2,915 ft.
Athens County, Lodi Township: Ross et al 3 C. A. Colburn, Sec. 13, 1 bbl., first Cow Run, not shot, T.D. 520 ft.
Guernsey County, Oxford Township: Frank Stranges 1 W. D. Stock, Sec. 17, 20,000 cu. ft. gas, shot, Berea, T.D. 1,470 ft.
Hocking County, Ward Township: Preston Oil 213 Sundav Creek Coal, Sec. 23, 30 bbl., shot, Clinton, T.D. 3,525 ft.
Knox County, Monroe Township: H. E. Perkins 1 R. Sellers, Sec. 5, dry, no Clinton sand, T.D. 2,405 ft.
Licking County, Fallsbury Township: L. I. Siler 1 L. McDonald, Sec. 19, 35,000 cu. ft. gas, Berea, T.D. 762 ft.
Hopewell Township: Davis & Hazlett 1 F. R. Claggett, Sec. 19, dry, Clinton, T.D. 3,146 ft.
Medina County, Hinckley Township: William Dempsey 1 John Ritz, Lot 55, 120 bbl., treated with acid, Little lime, T.D. 3,289 ft.
Belmont Quadrangle 2 Cleveland Metropolitan Park, 1,100,000 cu. ft. gas, shot, Clinton and Newburg, T.D. 3,327 ft.
Harry Dempsey 1 C. P. Brown, Lot 12, dry, Clinton, T.D. 3,518 ft.
Morgan County, York Township: Ohio Fuel 1 H. M. Fell, Sec. 36, 160,000 cu. ft. gas, shot, Berea, T.D. 1,079 ft.
Pure Oil 1 J. Eppley, Sec. 28, show gas, Clinton, plugged, T.D. 4,204 ft.
Industrial Gas 1 A. Souders, Sec. 21, dry, Clinton, T.D. 4,282 ft.
Muskingum County, Wayne Township: Ohio Fuel 1 F. G. Deitz, Sec. 18, 37 bbl., shot, Medina 4,073-79 ft. (Clinton dry), T.D. 4,097 ft.
Perry County, Clayton Township: Preston Oil 2 Jacob Keffer, Sec. 4, 28 bbl., shot, Clinton, T.D. 3,409 ft.
Preston Oil 4 Joseph A. Wilson, Sec. 6, slight show oil, Clinton, plugged, T.P. 3,208 ft.
Reading Township: Pure Oil 2 O. Melick, Sec. 1, 2,000,000 cu. ft. gas, light showing oil, Clinton, T.D. 3,231 ft.
Summit County, Bath Township: Wiser Oil 1 J. Switzer, Sec. 19, 120,000 cu. ft. gas, shot, Clinton, T.D. 3,450 ft.
Tuscarawas County, Sandy Township: Columbia Carbon 1 R. Miller, Lot 20, 250,000 cu. ft. gas, shot, Clinton, T.D. 4,848 ft.
Union Township: James Upham et al 1 Benjamin Beans, Sec. 29, 60,000 cu. ft. gas, plugged, Clinton, T.D. 5,500 ft.
Vinton County, Vinton Township: Mathews Oil Co. 1 J. Thompson, Sec. 6, show oil, plugged, Berea (water), T.D. 1,056 ft.
Washington County, Liberty Township: Otto Heldman 5 F. Doyle heirs, Sec. 14, 25,000 cu. ft. gas, Maxon, T.D. 1,228 ft.
Warren Township: Porter et al 1 T. Moore, Sec. 3, dry, Macksburg 800-ft. sand, T.D. 1,415 ft.

EASTERN KENTUCKY

ASHLAND, Ky.—Drilling operations have maintained a steady pace in this part of the state for the past week or so, but there has been a noticeable lack of new locations in the various reports. Two gas wells were drilled in during the week and several other wells are nearing the shooting stage or completion level.

EASTERN KENTUCKY COMPLETIONS

Knott County: Kentucky-West Virginia Gas 662 Joe H. Hall land on Puncheon branch of Righ Beaver Creek, flowed 119,000 cu. ft. gas, T.D. 2,780 ft. in shale, shot.
Pike County: Kentucky-West Virginia Gas 697 J. A. Scott tract on Johns Creek, flowed 310,000 cu. ft. gas, T.D. 3,307 ft. in shale, shot.

Kansas Fields

(Continued from Preceding Page)

Wilkens Southeast, Ellsworth County: Mid-Plains Oil 3 Alden, NW SE 32-17-9w, pumped 169 bbl., Arbuckle 3,230-38 ft.

MISSOURI

ST. JOSEPH, Mo.—Clifton Gall of Falls City is drilling 1 Leigh Mills in SE NE 24-1s-14e, Nemaha County, Kansas, about 2 miles north of Sabetha, Kans., this being the only new test of consequence in the Forest City basin last week. The 1 Mills was down some 1,600 ft. Nebraska was unusually quiet, with no activity at all being reported for the week.

MISSOURI COMPLETIONS

Atchison County: Cities Service 1 Gray, SW cor. 29-65n-39w, dry, T.D. 2,425 ft.

Certificates of War Necessity Required of Truck Operators

WASHINGTON, D. C.—Rules for filing of applications for certificates of war necessity for fleets of trucks and buses were issued last week by the Office of Defense Transportation.

Operators of more than two commercial motor vehicles must obtain fleet certificates for all vehicles, while operators of one or two vehicles require a single-unit certificate for each vehicle.

Certificates of war necessity are required under General Order ODT 21. Other truck conservation orders, including General Order ODT 17, governing operations of contract and private carriers remain in full force and effect.

Mailing of application blanks to fleet operators is nearly completed for the entire country, while mailing of applications for single-unit certificates is approximately one-third completed. Approximately 50 per cent of the truck owners in the country require single-unit certificates.

CANADIAN FIELDS

Devonian Test Started In Turner Valley

By VICTOR LAURISTON

CHATHAM, Ont.—Crude and natural gasoline production from all Alberta fields for August totaled 46,635 bbl., or 27,310 bbl. daily compared with 27,258 bbl. daily for July and 27,534 bbl. daily for August 1941. Of the August 1942 production, 816,077 bbl. came from Turner Valley, including 551 bbl. shallow crude.

TURNER VALLEY LIME TESTS

North Turner Valley: Northwest-Hudson's Bay 9, LSD 10, 8-21-3w5, Madison limestone 7,845 ft., deepening below 7,870 ft.

Foothills Oil & Gas 9, LSD 14, 27-20-3w5, T.D. 7,546 ft., Madison 6,214 ft., acid treatments in the lower zone produced flush of 3,000 bbl. daily with favorable gas-oil ratio, acidizing and testing upper zone.

West-central section: Royalite Oil 65, LSD 16, 7-19-2w5, below 6,810 ft., Madison 6,692 ft.

Southwest field: Northwest-Hudson's Bay 8, LSD 2-3, 8-18-2w5, below 8,480 ft., Madison 8,214 ft.

TURNER VALLEY COMPLETIONS

Major Oils 8, LSD 13, 4-21-3w5, T.D. 7,774 ft., Madison at 7,270 ft., flush production 1,899 bbl. daily of 41.1° crude with 4,949,000 cu. ft. of gas, acidized, allowable increased to 529 bbl.

Northwest-Hudson's Bay 7, LSD 14, 8-21-3w5, T.D. 8,600 ft., Madison 8,169 ft., acidized, initial flow 1,262 bbl. daily of 39.9° crude, 1,023,000 cu. ft. of gas, allowable 600 bbl. daily.

Deep Test Starting

Work has commenced on Devonian Test 1, LSD 2, 25-19-3w5, in which a group of Turner Valley companies are cooperating for a test of the Devonian limestone underlying the Madison. Heretofore the main Turney Valley crude production has come from two porous horizons in the Madison limestone, drilling being usually discontinued in the black lime underlying the lower porous zone. Location is about ½ mile north and west of the once-prolific gas-naphtha area in 20-19-2w5, and southwest of the original Central Turner Valley naphtha field. The test is expected to cost around $250,000 and Royalite Oil Co. has contributed $135,000 with other companies contributing from $2,500 to $35,000. Production is to be shared pro rata. Contract has been let to Drilling Contractors, Ltd., of Calgary.

Taber Field

In the Taber field, southern Alberta, Standard of British Columbia 1, LSD 9, 18-9-16w4, was continuing pumping tests with some interruptions owing to lack of storage. After each shutdown the well required several days to regain its peak, stepping up in 4 days from about 150 to 332 bbl. daily without increasing the speed of the pump. Oil in the hole stands around 2,500 ft. Part of the output is shipped to the Huff refinery at Lethbridge, and an experimental shipment has been made to National Sodium Products at Bishopric, Sask. Clancey-Hi Test 1, LSD 7, 24-9-17w4, after recementing and sidetracking, is coring below 3,256 ft., close to the sand.

Steveville Field

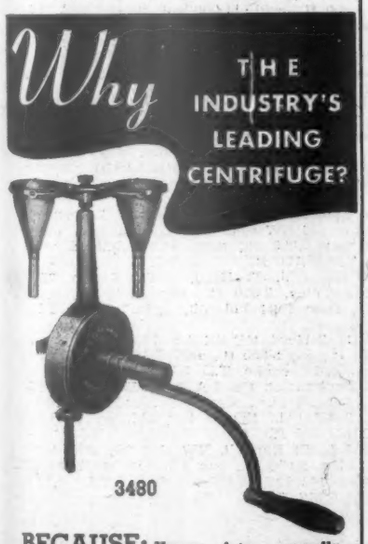
In the Steveville field, in eastern Alberta, Standard of British Columbia 2 Princess, LSD 3, 13-20-12w4, has maintained a steady crude production over several months, averaging around 45 bbl. daily or better, with a total output of more than 17,000 bbl. Performance of the discovery well has led the company to spot a new offset test, in LSD 15, 12-20-12w4. Rotary tools from the company's abandoned well at Eyremore are being moved to location, and test will probably spud early in November. The discovery well gets its production from the top of the lime while five other wells were finished as gassers in the Sunburst sand, above the lime.

In the Tilley field, eastern Alberta, Imperial-Tilley 7, LSD 7, 18-17-12w4, has been abandoned around 3,200 ft. Imperial-Tilley 8 is moving machinery to location. In the Monogram area, 17 miles south and east of the Tilley field, Imperial-Monogram 2, LSD 4, 30-16-9w4, has been abandoned below 2,993 ft.

Vermilion Field

The Vermilion field in eastern Alberta with 14 wells showed, for August, an output of 6,737 bbl., 938 bbl. less than July, or an average of 15 bbl. daily per well. The largest producer, Alberta Southern 1, made around 44 bbl. daily. The Canadian National Railways, which has been looking to the field as a potential source of fuel oil is negotiating with the Western Drilling Co. for acreage with a view to the possible drilling

(Continued on Page 107)



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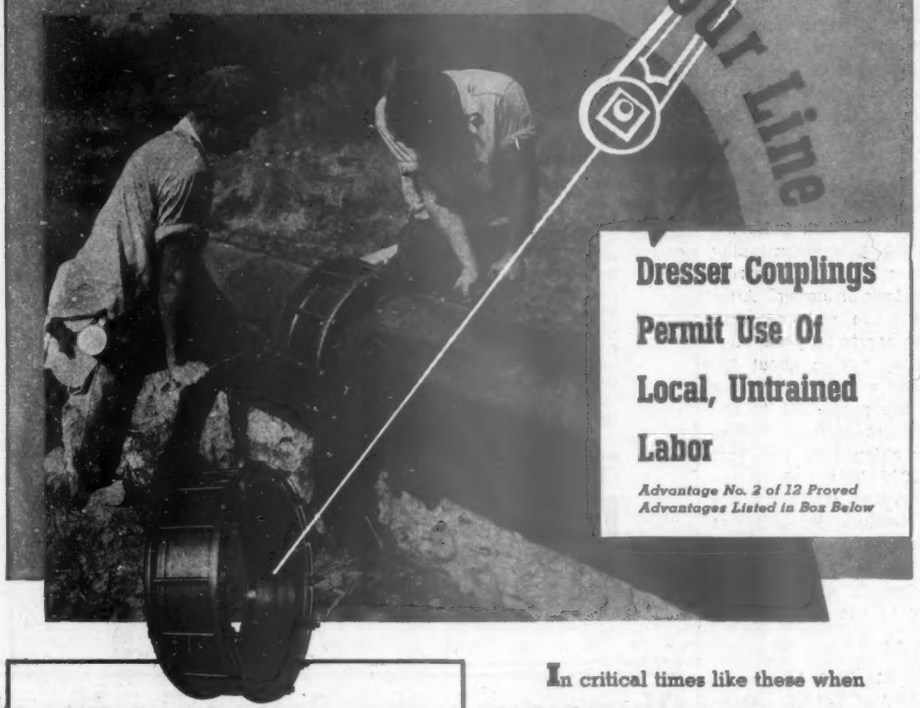

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Dresser Manufacturing Co.

BRADFORD, PA.

DRESSER PIPE COUPLINGS

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Permian Basin, Panhandle

(Continued from Page 80)

elev. 3,353 ft., pay 6,728 ft., acid. 20,000 gal., 2-A Wilson, SE NE Sec. 16, Blk. A-32, P.S.L. Sur., flowed 992 bbl. oil on ½-in. choke, T.D. 7,248 ft.

Emma field, Andrews County: Sinclair Prairie 18 Emma Cowden, NW NE Sec. 12, Blk. 44, Twp. 1n, T.&P. Sur., elev. 3,166 ft., pay 4,210 ft., acid. 2,000 gal., flowed 1,216 bbl. open tubing, T.D. 4,300 ft.

North Cowden field, Andrews County: Texas Pacific Coal & Oil 5 Holt Acct. 2, SW NW Sec. 9, Blk. 43, Typ. 1n, T.&P. Sur., elev. 3,077 ft., pay 4,525 ft., shot 570 qt., flowed 334 bbl. open tubing. T.D. 4,658 ft.

Slaughter field, Cochran County: Anderson-Prichard 8 Neal, Lge. 57, Refugio C.S.L. Sur., elev. 3,680 ft., pay 4,903 ft., shot 50 qt. and acid. 10,000 gal., flowed 412 bbl. a day open casing, T.D. 4,996 ft.

Magnolia Pet. 11 Mallet, Lab. 6, Lge. 51, Scurry C.S.L. Sur., elev. 3,642 ft., pay 5,015 ft., acid. 9,500 gal., flowed 703 bbl. open casing, T.D. 5,057 ft.

Stanolind 2 Mallet, SW SW Lab. 1, Lge. 53, Scurry C.S.L. Sur., elev. 3,626 ft., pay 4,985 ft., acid. 6,000 gal., flowed 292 bbl. on 1-in. tubing choke, T.D. 5,045 ft.

Sand Hills deep field, Crane County: Gulf Oil 7-B Tubb et al, NW SE Sec. 28, Blk. B-27, P.S.L. Sur., elev. 2,477 ft., pay 5,643 ft., acid. 5,000 gal., flowed 7,638 bbl. plus 2 per cent water, T.D. 5,676 ft., top Ellenburger 5,630 ft.

Sand Hills Permian field, Crane County: Magnolia 2 Katy Lea, NE SW Sec. 9, Blk. 32, P.S.L. Sur., elev. 2,607 ft., pay 4,331 ft., acid. 2,500 gal., flowed 519 bbl. on ½-in. choke, T.D. 4,546 ft.

Noelke field, Crockett County: A. J. Rife and Floyd Scott 3 Thompson, NW edge field, Sec. 58, Blk. GG, elev. 2,804 ft., pay 1,535 ft., flowed 2,148 bbl. natural, open 2-in. tubing, gas-oil ratio 101:1, gravity 36, flowing T.P. 75 lb., C.P. 50 lb., T.D. 1,536 ft.

World field, Crockett County: Shell Oil 2 Powell, Sec. 63, Blk. BB, E.L.R.R. Sur., elev. 2,815 ft., pay 2,670 ft., acid. 3,080 gal., pumped 30 bbl. oil plus 16 bbl. water, gravity 32, T.D. 2,702 ft., P.B. to 2,686 ft.

South Cowden field, Ector County: Richmond Drilling Co. 1 L. M. Johnson, Sec. 32, Blk. 42, Twp. 2s, T.&P. Sur., elev. 2,898 ft., pay 4,300 ft., shot 550 qt., pumped 420 bbl., T.D. 4,473 ft.

Richmond Drilling Co. 2 L. M. Johnson, old well drilled deeper, Sec. 32, Blk. 42, Twp. 2s, T.&P. Sur., old T.D. 4,340 ft., pay 4,336 ft., shot 540 qt., pumped 440 bbl., T.D. 4,480 ft.

Wasson field, Gaines County: Continental-Carter 16-48 Wasson, SW SW Sec. 48, Blk. AX, P.S.L. Sur., Elev. 3,545 ft., pay 4,890 ft., acid. 12,000 gal., flowed 927 bbl. open tubing, T.D. 4,960 ft.

Honolulu Oil Corp. 2 Brown, SE SW Sec. 39, Blk. AX, P.S.L. Sur., elev. 3,523 ft., pay 4,954 ft., acid. 12,500 gal., flowed 640 bbl. day, T.D. 5,029 ft.

Slaughter field, Hockley County: T. F. Morrow 9 Mallet, SW SW Lab. 21, Lge. 48, Edwards C.S.L. Sur., elev. 3,602 ft., pay 4,922 ft., acid. 2,000 gal., flowed 717 bbl. open casing, T.D. 4,977 ft.

Western States Gasoline Corp. 19-B Mallet, SE SE Lab. 21, Lge. 47, Edwards C.S.L. Sur., elev. 3,607 ft., pay 4,950 ft., acid. 11,000 gal, flowed 886 bbl. open casing, T.D. 4,998 ft.

Taylor-Link field, Pecos County: J. C. Lancaster 1-C University, SW SW Sec. 28, Blk. 16, University Sur., elev. 2,517 ft., pay 1,447 ft., shot 80 qt., flowed 134 bbl. ¾-in. tubing choke, T.D. 1,476 ft.

Jamison-Pollard field, Ward County: Jamison-Pollard 3 White (formerly designated as "Wilcox" lease). Lot 9, Sec. 36, Blk. 1, H.&T.C.R.R. Sur., elev. 2,422 ft., pay 1,920 ft., flowed 148 bbl. day through 12/64-in. tubing choke, gas-oil ratio 1,907:1, gravity 36, T.D. 1,957 ft., natural, top anhydrite 432 ft., top salt 720 ft.

Wasson field, Yoakum County: American Liberty 1 J. H. Lynn, SE SW Sec. 733, Gibson Sur., elev. 3,630 ft., pay 5,065 ft., acid. 10,000 gal., flowed 454 bbl., T.D. 5,160 ft.

Belfort Oil Co. 1 J. T. Herd, NW SE Sec. 795, Gibson Sur., elev. 3,650 ft., pay 4,970 ft., acid. 9,000 gal., flowed 94 bbl. oil, ⅛-in. choke, T.D. 5,130 ft.

Belfort Oil Co. 2 Herd, NE SE Sec. 795, Gibson Sur., elev. 3,654 ft., pay 5,035 ft., acid. 9,000 gal., flowed 99 bbl. on ⅛-in. choke, T.D. 5,130 ft.

Drilling & Exploration Co. 1-A A. J. Davis, SE SE Sec. 728, Gibson Sur., elev. 3,697 ft., pay 4,995 ft., acid. 9,000 gal., flowed 227 bbl. on 7/16-in. choke, T.D. 5,230 ft.

Humble O. & R. 21 Randall, NW NW Sec. 859, Gibson Sur., elev. 3,656 ft., pay 5,035 ft., acid. 6,000 gal., flowed 442 bbl., 9/16-in. choke, T.D. 5,130 ft., P.B. to 5,117 ft.

SOUTHEAST NEW MEXICO

HOBBS, N. M.—Completions were off last week but active drilling was reported from a number of wildcat tests. Contract has been let to J. T. O'Neal of Lubbock, Tex., for a rank wildcat test in the northwest corner of De Baca County. Location is SE NE NE 5-4n-20e. It will be drilled to 6,000 ft.

Atlantic Refining Co. 1 Langlie, 11-25s-37e, an 8,500-ft. test in the shallow Langlie pool of Lea County, was drilling below 5,600 ft. in lime. Drill-

stem test at 4,850-5,080 ft. returned 180 ft. of oil-cut mud.

SOUTHEAST NEW MEXICO COMPLETIONS

Cooper, Lea County: Skelly 2 Cooper, NW SW 12-24s-37e, flowed 54 bbl. in 12 hr., pay 3,586 ft., T.D. 3,675 ft., shot 3,586-3,670 ft.

Maljamar, Lea County: Maljamar Oil & Gas 15-A Baish, NE SW 21-17s-32e, flowed 50 bbl. through open 2-in. tubing set at 3,500 ft., pay 3,945 ft., T.D. 4,000 ft., shot 3,920-4,000 ft.

TEXAS PANHANDLE COMPLETIONS

Carson County: Skelly Oil Co. 157 Schafer ranch, Sec. 197, Blk. 3, I.&G.N. Sur., pay 3,090-3,195 ft., shot 543 qt., flowed 343 bbl., T.D. 3,205 ft.

Skelly Oil Co. 158 Schafer ranch, Sec. 197, Blk. 3, I.&G.N. Sur., pay 3,117-3,215 ft., shot 510 qt., flowed 463 bbl., T.D. 3,215 ft.

Hutchinson County: Continental Oil & Sanford D, Sec. 77, Blk. 46, pay 2,846-76 ft., flowed 132 bbl., T.D. 2,877 ft.

J. M. Huber 3 Bryan, Sec. 2, Blk. M-10, acid 1,000 gal., pumped 66 bbl., T.D. 3,310 ft.

Mid-Continent Section, A.I.M.E., To Meet in Tulsa Next Week

The Mid-Continent section of the American Institute of Mining and Metallurgical Engineers will hold its first fall meeting at the Mayo Hotel, Tulsa, October 26, at 8 p.m. Two papers concerning water flooding will be presented. R. C. Earlougher, Geologic Standards, will present a paper on "The Efficiencies of Water Flooding," and H. S. Milam, Phillips & Milam Oil Co., will present a paper on the "Economics of Water Flooding."

This meeting is considered very timely since secondary recovery in the State of Oklahoma is becoming more important due to declining oil reserves. The meeting is open to the public.

Standard of Louisiana Posts First Prices in Three Fields

BATON ROUGE, La.—A gravity-price table ranging from 86 cents per barrel for below 25-gravity crude to a top of $1.18 for 40-gravity and above was posted this week by Standard Oil Co. of Louisiana in the Cypress Bayou, Indian Bayou and Lake Larto, Louisiana, fields.

The prices, first ever quoted for the three fields, are subject to disapproval by the Office of Price Administration. The quotations became effective October 10 but the posting was announced October 19.

NORTH LOUISIANA, ARKANSAS

Request Relaxation of Spacing Requirements in Midway Field

SHREVEPORT, La.—Drilling activity in the Midway pool of Lafayette County, Arkansas, has been at a standstill for several weeks. The Barnsdall Oil Co. has petitioned the Arkansas Oil and Gas Commission for permit to drill on a 20 acre pattern and the decision handed down will determine, to a great extent, the future development of the field. A number of recent completions have been dry, due to the fact that 40-acre spacing forced the drilling of wells too near the edge of the Smackover lime structure. Last week Barnsdall abandoned locations at its 6-A and 7-A McClaine, which were at the southeastern tip of the field.

Southwood Oil Co. 2 Hodnett, NW NW 18-15s-23w, a north offset to its No. 1, was reported to be flowing into pits following perforations at 6,372-87 ft. Total depth was 6,467 ft. Since the first of the summer, the 1 Hodnett has been the field's most easterly well and producing from —6,211 ft., or just a few feet above the water table, some operators thought it might limit the field in that direction. However, the same company's 3 Hodnett, NE NW of Section 18, has had favorable showings and is down 6,402 ft. in the top of Smackover lime. Locations have been staked for 4 and 5 Hodnett, which if productive, will extend the field another half mile east.

ARKANSAS COMPLETIONS

Midway, Lafayette County: Barnsdall 7-A McClaine, SW NE 13-15-24w, abandoned location.

Barnsdall 6-A McClaine, N½ SE NW 13-15-24w, abandoned location.

New London, Union County: Marine Oil Co. 2 Walton, SE NW 13-18s-12w, dry, T.D. 6,175 ft., Smackover 6,131 ft.

Stephens, Columbia County: G. H. Vaughn 1 Green, SE NW 11-15s-20w, pumped 55 bbl., Smart sand 3,471 ft., perf. 3,412-36 ft.

NORTH LOUISIANA COMPLETIONS

Wildcat, Concordia Parish: Texas Co. 1 Madison, SE NE SW 30-5s-8e, dry, T.D. 6,972 ft., Wilcox 4,614 ft.

Wildcat, La Salle Parish: Phillips Pet. 1-C Tensas Delta, NE NW 28-6n-4e, dry, T.D. 3,871 ft., Wilcox 3,063 ft., Midway 5,810 ft.

Carterville-Sarepta, Webster Parish: Sam Backus 5 Pardee, NE NW NW 3-22n-11w, dry, T.D. 2,658 ft.

Haynesville, Claiborne Parish: White & Hinton 1-A Hunt, NE NW NW 17-23n-8w, flowed 24 bbl. an hr. through choke, Pettit 5,403-11 ft., T.D. 5,493 ft.

Sugar Creek, Claiborne Parish: Carter Oil 3 Dobbins, SW SW 1-19n-6w, flowed 52 bbl. through choke, Ozley sand 5,905-14 ft., top porosity 5,909 ft., T.D. 6,028 ft.

Another Distributor Cited For Excess Gasoline Delivery

The Connecticut Refining Co., West Haven, Conn., fourth New England distributor to be cited for violations of the War Production Board order establishing gasoline quotas for service stations, is prohibited from delivering to 27 of its customers, in any one calendar month, more than 25 per cent of the normal gallonage of each. The order is effective for the months of October, November and December.

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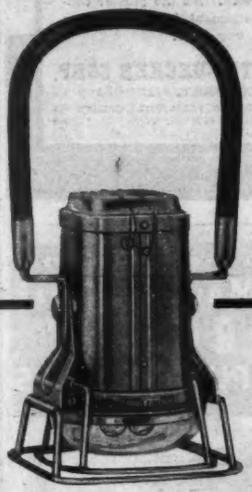

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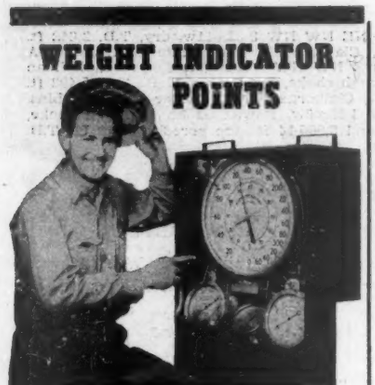

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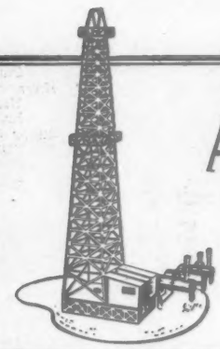


Among the Drilling

WILL L. LEWIS, drilling contractor of Mount Vernon, Ill., and Dallas, Tex., has recently completed three wells in Hamilton County, Illinois, for Magnolia Petroleum Co., and is at present building derrick for the fourth location in this same area. These wells, the 3, 4 and 5 Hamilton, were in 24-6s-5e.

JOHN COATS, drilling contractor of Longview, Tex., last week continued lease title work on a block of acreage assembled in Morris County, Texas, north of Omaha, in preparation for a projected sand operation. Rig has been set up in the B.B.B.&C. R.R. Survey, 990 ft. from the southeast corner, for the test, which will be south of a Paluxy failure drilled by M. H. Marr and associates. Mr. Coats extended the Marr block to the southwest.

FAIN Drilling Co. has the contract for Continental Oil Co. 1 Myers, in SW NW SW 26-17n-4w, on extreme east side of the Layton zone, Logan County, Oklahoma.

ZEPHYR Drilling Co. 2 Sinclair, in SE NE NW 34-17n-8e, Creek County, Oklahoma, based the Prue zone at 2,412 ft. and went to 3,440 ft. and shot with 60 qt., tested 40 bbl. of oil in 16 hours.

DELTA Drilling Co. 1 Goldsmith, in the S. G. Purse Survey, 3 miles northwest of Quitman, in Wood County, East Texas, was drilling below 3,900 ft. It is a Travis Peak test.

CROW Drilling Co. has the contract for F. R. Sylvestre of Shreveport, La., 1 Garret-Benefield-1, in SW NE 8-23n-8w, the Haynesville area of Claiborne Parish, Louisiana. The location has been staked.

KENNEDY Drilling Co. has the contract for Magnolia Petroleum Co. 2 Dunn-Thigpen, in NE 6-20-15w, the Pine Island area of Caddo Parish, Louisiana. Contract is for the chalk zone.

GEORGE P. LIVERMORE, Inc., of Lubbock, Tex., has taken drilling contract for the new 5,500-ft. wildcat being started by L. A. Helms et al, of Tulia, Tex., in Swisher County, Texas, and started moving in rotary equipment last week.

B. A. DUFFY, Abilene, Tex., drilling contractor, is rigging up cable tools to drill A. G. Talbot 1 Wilkinson, new 4,000-ft. Ellenburger wildcat in northwestern Menard County, Texas.

JOHN T. O'NEAL, Lubbock, Tex., contractor, is moving in rotary for a new 6,000-ft. wildcat in De Baca County, southeastern New Mexico, to drill South Basin Oil Co. 1 Good, in 5-4n-20e. It is a rank wildcat, being about 100 miles northwest of nearest Eddy-Lea counties fields and some 36 miles west of Fort Sumner.

J. W. CARTER Drilling Co. has moved its head office from Evansville, Ind., to 1306 Trinity Life Building, Fort Worth, Tex. Operating in the Mid-Continent and Texas areas, the company also will maintain its Tulsa office. Ray Broman has been transferred to the Fort Worth office. Mr. Carter and Burt Lambert, company officials, will make their homes in Fort Worth.

NELSON Drilling Co. is drilling into the chat with cable tools at 2 H. S. Anderson, in C W½ SW 26-19-6w, in the west end of the Smyers pool, Rice County, Kansas. The chat was topped at 3,300 ft., where a show of oil was logged.

RATHKE Drilling Co. was moving in tools for 1 Jagoda, J. Erwin Survey, a mile west of Joplin, for a 4,800-ft. wildcat in southeastern Jack County, Texas.

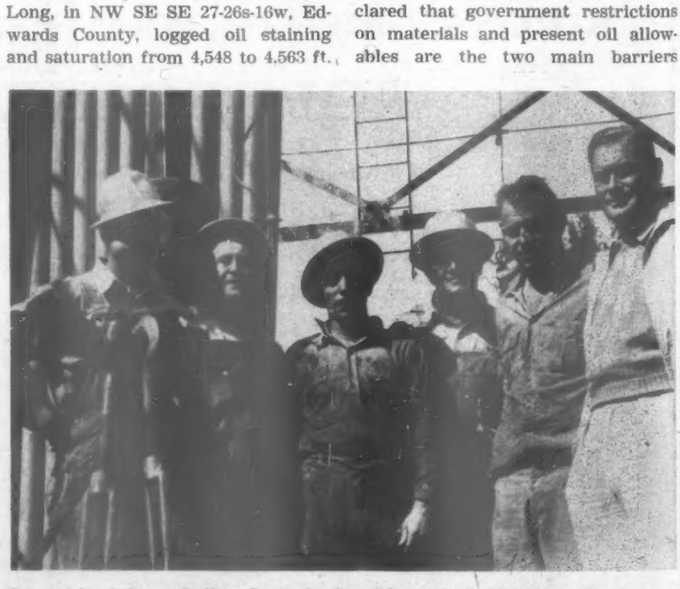
HERNDON Drilling Co., Tulsa, 1 Long, in NW SE SE 27-26s-16w, Edwards County, logged oil staining and saturation from 4,548 to 4,563 ft., in rotary drill cuttings from the Misener sand topped at 4,548 ft. and based at 4,589 ft. Originally the wildcat was drilled to a total depth of 4,918 ft. in barren Arbuckle dolomite topped at 4,838 ft. The well was plugged back and 5-in. pipe set at 4,690 ft. for a production test. It is 6 miles southwest of the McCarty (basal Pennsylvanian conglomerate) gas pool.

FALCON-SEABOARD Drilling Co. 1 Claire D. Hoffman, a wildcat in the C W½ NE SW 25-17-4w, 1½ miles southwest of the Lindsborg pool, was drilling below 3,070 ft. with rotary tools and making fast time.

SMITH BROTHERS Drilling Co. 1-A Billington, in SE NE SE 22-9n-4e, Pottawatomie County, Oklahoma, drilled plug at 4,458 ft., atop the first Wilcox sand, and had 2,000 ft. of salt water. It was being plugged back to a show in the dolomite at 4,424-38 ft.

EARL F. WAKEFIELD is the drilling contractor on Eben W. Pyle, O. E. Sutter, and Wolf Creek Oil Co., Wichita, Kans., 1 Hawley, in C SW SE 9-35s-42, which was drilling at 1,600 ft. The test is a semiwildcat.

H. R. RODGERS, state land commissioner of New Mexico, last week advocated tests to determine feasibility of drilling deeper wells in southeastern New Mexico fields. He declared that government restrictions on materials and present oil allowables are the two main barriers



Crew of Hugh Pierce Drilling Co. in the East Edmond field, Oklahoma. The men are F. V. Brewer, backup man; R. E. Andrews, motorman; Roy Mason, pipe racker; F. C. Carmichael, driller; Ed McMann, derrick man, and Hugh Pierce, contractor

Contractors

blocking a test of the Ordovician zone, which underlies the currently producing Permian strata.

"For several years they have been getting oil out of the Ordovician in the West Texas field, and I feel that now is the time to have a test drilling in the Ordovician strata of southeastern New Mexico," Mr. Rodgers said. He added that many West Texas wells in Ordovician strata are from 7,000 to 8,000 ft. deep, with one at Deep Rock reaching 9,000 ft. This compares with an average depth of from 3,800 to 4,500 ft. for the New Mexico wells bringing oil out of the Permian zone. He pointed out that existing pipe lines and transportation facilities would make it unnecessary to divert critical materials to facilities for moving any oil which might be found in the Ordovician.

IDEAL Drilling Co. has the contract for Herman Hurst et al 1 Parish, in SE NE NE 11-3n-1w, west of Pauls Valley, in Garvin County, Oklahoma, which was drilling below 1,500 ft. The contract is for the Wilcox sand, or 4,250 ft.

INGLING & PARKER has the drilling contract for J. W. Dutton 1 Bristol, C NW SW 9-1n-2e, Murray County, Oklahoma, which was drilled to 3,507 ft. and was setting 7-in. casing atop sand at 3,495 ft. The plug was to be drilled with cable tools.

S. B. ROBERTS is drilling contractor for Drilling & Exploration Co. 1 D. J. Gibson, a 3,500-ft. test 330 ft. out from the southeast corner of the northeast quarter of the 160-acre lease in Block 8, League 147, Grimes County, Texas, school land, a mile southwest of Merkel. Location was made last week.

HANNUM Drilling Co., Wichita, Kans., is the drilling contractor on Tuesday Oil Co. 1 B. C. Calbeck, in C NW NE 1-27s-13w, Pratt County, Kansas, which is due to extend Simpson dolomite production 1 mile northward. Viola lime was topped at 4,145 ft. by samples, Simpson sand topped at 4,224 ft. in core cut from 4,217 to 4,227 ft.

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Oil Operations Exempt From Agave Fiber Ban

WASHINGTON, D. C. — Agave fiber cordage may continue to be used in the manufacture of cat lines, bull ropes, and drilling cables used in the operation or drilling of oil and gas wells among a few other essential uses specified in an amendment to Preference Order M-84. Production of agave cordage for nonessential civilian purposes has been completely prohibited by the War Production Board.

Previously there had been restrictions on the amount of agave going into the processing of cordage, but there were no controls over use of the cordage.

The amendment provides that effective immediately and up to December 31, no processor can produce or sell agave cordage except for: (1) specified governmental and lend-lease purposes; and (2) the following essential civilian uses: commercial marine, towage, or lighterage uses, provided the cordage is 1 in. or more in diameter; fishing uses for commercial fish markets or canneries; cat lines, bull ropes, and drilling cables used in the operation or drilling of oil and gas wells; drilling cables used in mines and quarries; power transmission uses; and rigging for shipyard or other construction purposes.

The amended order also requires that purchasers of agave cordage certify to the processor that the material is to be consumed only for permitted uses.

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Geophysical Section, Geological Survey, Transferred to B. of M.

HAROLD L. ICKES, secretary of the interior, has transferred the Geophysical Section of the Geological Survey to the Bureau of Mines in a move to expedite the nation-wide search for critical minerals needed in the war program, according to Dr. R. R. Sayers, director of the Bureau of Mines.

In becoming a part of the bureau's recently streamlined Resources and Laboratories Service, the new unit will be known as the Division of Geophysical Exploration and its personnel will continue and intensify the hunt for domestic minerals which can be used to produce the metals for planes, tanks, guns, ships and other war materials, Dr. Sayers said.

Commenting upon the transfer, Secretary Ickes stated:

"If the funds available to the Geological Survey and the Bureau of Mines for doing geophysical work are combined and all geophysical work is done by the Bureau of Mines, economies will be effected, efficiency will be increased, and the nation's war need for critical minerals will be met more adequately."

Since 1939 when the investigation of domestic sources of strategic and critical minerals was inaugurated as a defense and war measure, the Geophysical Section of the survey has cooperated closely with the Bureau of Mines in locating deposits, according to Secretary Ickes, and the joint effort has to its credit a number of important discoveries of chromite, manganese, tungsten, mercury, and other ores.

Recent congressional action has made additional funds available to the Bureau of Mines for increased activity in the mineral exploration field, the secretary stated, and the new Geophyscial Exploration Division will engage in certain special aspects of this work.

By the use of highly complicated instruments, geophysicists are able to locate critical minerals more quickly, to prevent useless and time-wasting drilling in many cases, and to speed up the exploratory work in general. Demands for their services within the Bureau of Mines are increasing as the wartime program gains momentum.

Although the section has been transferred to the Bureau of Mines, it will continue to cooperate with the Geological Survey in order that any needs of the survey for geophysical information may be supplied.

Headquarters of the former Geophysical Section are in Baltimore, Md., although most of its employes are in the field in various parts of the United States. The personnel totals 12 persons.

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Personal Paragraphs

ROBERT M. CARTER, engineer, Stanolind Pipe Line Co., Tulsa, received a $500 award in a recent industrial study conducted by the James F. Lincoln Arc Welding Foundation, Cleveland, Ohio. Other employes of Stanolind Pipe Line Co. winning awards in the study for papers presented were R. W. GLADSON, welder ($250), and CLAUDE E. SPENCER, welding foreman, and A. M. HILL, maintenance man, who won a $150 joint award.

B. B. HAYES, land man for Skelly Oil Co. at Ardmore, Okla., has been temporarily assigned to the Tulsa office of the company.

M. W. ROBINSON, engineer for National Transit Co., Oil City, Pa., has been named general chairman for the annual membership drive of the Oil City Y. M. C. A.

CAPT. VIC CLINE, formerly an independent oil operator of Midland, Tex., and now of the U. S. Marine Corps, has been transferred from San Diego, Calif., to Alaska.

C. W. DAVIS, of Davis Drilling Co., Holdenville, Okla., has been selected to succeed Dr. John Munal on the Hughes County, Oklahoma, war price and rationing board.

VIRGIL B. COLE, Wichita, Kans., has been made district geologist in Kansas for the Gulf Oil Corp., succeeding ANTHONY FOLGER, who resigned October 1 to become a consultant.

REESE CLEVELAND, who was formerly an oil operator in Midland, Tex., has been called for Army duty. He is a first lieutenant and is stationed at Fort Bliss, El Paso, Tex., in the public-relations department.

TOM MATKINS has been named assistant district landman in Kansas for Sinclair Prairie Oil Co., succeeding GEORGE R. JOHNSON, who was recently transferred to Tyler, Tex. BEN HORTON is the company's district landman at Wichita.

OLIVER S. AMBROSE has resigned as assistant research director in the Office of Petroleum Coordinator, to return to his connection with Tide Water Associated Oil Co. He has been succeeded by C. D. LOCKWOOD, Houston, Tex., former trade-journal writer, oil author, and publisher of Lockwood Daily Oil Report.

TED ROZSA, of the Midland, Tex., geophysical section, Shell Oil Co., Inc., is recognized as one of the foremost chess players in those parts. He placed second in the regional tournament held recently in Dallas, Tex., losing only by one-half point to the Texas state champion.

EARL D. WALLACE, of Lexington, Ky., has resigned as Kentucky-Illinois manager of Petroleum Exploration Co. and Wiser Oil Co. to take a position with Standard Oil Co. of Ohio, as land man and production manager in the crude-oil-production division of the supply and transportation department. Mr. Wallace is a member of the petroleum industry production committee of District 2. JOHN P. SMOOTS, who has been in charge of all Standard of Ohio's production activities, becomes exploration and geological manager.

DR. W. A. BRUCE has been appointed acting chief of production research in the Carter Oil Co. research laboratory, Tulsa, in the absence of L. R. HODELL, who is on leave from the Carter organization while serving with the Army. Dr. Bruce will assume the responsibilities formerly handled by Mr. Hodell. In former years Dr. Bruce specialized on the mechanics of petroleum-producing reserves.

DR. W. A. BRUCE

ROBERT S. COOKE, engineer for Carter Oil Co. at Seminole, Okla., has been transferred to Great Bend, Kans.

RICHARD SCHWEERS, of the Texas Co., Fort Worth, Tex., addressed the weekly meeting of the Fort Worth Geological Society Monday.

C. C. TOOMEY, president, Midco Oil Corp., Tulsa, has been named a colonel in the marine division of Tulsa's War Chest campaign, which is now under way.

ROSS C. WALKER, accountant with Oklahoma Pipe Line Co., Tulsa, has been awarded the Standard Oil Co. (New Jersey) 40-year-service button. He is the only member of the company's subsidiaries in Tulsa to receive this award.

HENRY A. ROACH, independent oil operator, Fort Worth, Tex., recently arrived at the Finance Replacement Center at Fort Benjamin Harrison, Indiana, to begin his basic training in finance. He will be taught army pay methods upon completion of a period of intensive field training.

P. J. NOON, executive secretary of the Bradford District Pennsylvania Oil Producers Association, has been appointed a member of the committee on bylaws, credentials, rules and order of business of the National Stripper Well Association. D. G. POWELL, Tulsa, is chairman of the group.

RICHARD E. GILE, geologist with Bay Petroleum Corp., has been placed in charge of new offices the company has opened at Midland, Tex., to serve the West Texas-New Mexico division. Prior to his connection with Bay, Mr. Gile had been with Tide Water Associated Oil Co., British American, and in consulting work.

Do You Remember?

From The Oil and Gas Journal Files

35 YEARS AGO (1907)

Capt. A. F. Lucas, who drilled the discovery well at Spindletop, has returned to his home at Washington, after attending the third International Petroleum Congress at Bucarest, Rumania.

A new feature of the State Fair at Dallas, Tex., October 19 to November 3, will be a rendezvous for oil men. This has been provided by Texas Co., which has erected its own building on the grand stand drive.

The Navarro Refining Co. of Corsicana, Tex., was chartered at Austin on October 12, and has succeeded the Corsicana Refining Co. The new concern is capitalized at $200,000.

25 YEARS AGO (1917)

High-grade oil was so plentiful in years gone by that shutdown movements were resorted to in an effort to boost prices. That was before automobiles became so numerous, and before the airplane and the motor boat began to show cause.

Progress in the construction of the Sinclair-Cudahy pipe line from the Cushing field to Chicago is reported all along the route. Telegraph wire is being strung and pump stations are being installed.

Hominy, Okla., in a year, has doubled its population and is soon to take on the airs of a city, with paved streets, etc. Oil development in that district is the cause of the city's growth.

15 YEARS AGO (1927)

Russian oil is still the outstanding topic of interest to the oil industry in Europe. During August, the three largest Russian oil trusts produced 865,900 metric tons of oil.

H. S. Crowley, assistant superintendent of pipe lines for Texas Co., in Louisiana and Arkansas, has taken unto himself a wife and is spending a short honeymoon in Dallas, Tex.

There are good grounds for thinking that Seminole is due for a big tumble in production by the end of the year. Since its peak in July of 527,400 bbl. it has fallen off over 80,000 bbl. a day.

G. G. BRUBAKER has been appointed general sales manager of Pennzoil Co. of California, Los Angeles, according to an announcement of JOHN B. BEMAN, president.

H. L. MASSEY, executive vice president of Southern California Gas Co., permitted himself to be drafted as campaign chairman for the Los Angeles Community Chest drive.

LEE ADAMS, former scout for Sinclair Prairie Oil Co. at Oklahoma City, Okla., has been promoted from captain to major, and is stationed at Will Rogers field, in Oklahoma City.

R. R. RANSOM, land man who was formerly stationed at Falls City, Neb., and R. KRISTOFFERSON, geologist, formerly in the Houston, Tex., office, for Skelly Oil Co., will be in charge of an office Skelly is establishing in Mount Pleasant, Mich.

D. P. HARTSON, vice president and general manager of Equitable Gas Co., Pittsburgh, Pa., and D. S. KEENAN, president, Carnegie Natural Gas Co., also of Pittsburgh, are scheduled to address a meeting of the Pennsylvania Natural Gas Men's Association at Pittsburgh, October 22.

HUBBARD E. ANDERSON, San Francisco, Calif., advertising representative of Union Oil C., Los Angeles, Calif., took a leave of absence this week to enlist as a private in the Army Air Forces and will be assigned to a ground crew at the Stockton, Calif., training center for advanced flying students.

Playwright—Oil Man

Walter L. Faust, recently elected a vice president of Socony-Vacuum Oil Co., Inc., joined Vacuum Oil Co. in 1929 and later Socony-Vacuum Oil Co., Inc. In 1935 he took over direction of the company's aviation sales. In 1938 Mr. Faust was appointed eastern sales manager in charge of Socony-Vacuum operations in the eastern part of the United States.

WALTER L. FAUST

Mr. Faust was born in Bryn Mawr, Pa., August 4, 1895. He attended Stevens Institute of Technology, Hoboken, N. J., leaving to join the Coast Artillery during World War 1. He rose to a first lieutenancy. After the war he returned to school and graduated in 1921 as mechanical engineer.

He became chief engineer and later sales manager for Whitlock Cordage Co. and after going to Vacuum Oil Co. in 1929 in the marine sales he became department manager in 1932. After the merger with Standard Oil Co. of New York, Mr. Faust headed the marine sales department for the new company.

He lives with wife and two daughters at Summit, N. J. He is a member of the New York Yacht Club. His hobby is writing plays. Several of Mr. Faust's plays have been produced.

HORACE N. GOODELL, a student at Colorado School of Mines, has been employed by Shell Oil Co., Inc., as an engineering trainee.

HOWARD H. JEUTTER, oil producer of Bradford, Pa., has purchased a 137-acre lease in fee in Bradford Township, in Pennsylvania.

MAJ. ALBERT CLINKSCALES, formerly geologist at Oklahoma City, Okla., now is an instructor at the Army Air Forces school at Miami Beach, Fla.

LANGDON TENNIS, former Midland, Tex., geologist, has received his commission as second lieutenant in the Army Air Forces. The award came at an Hondo Navigation School graduation last Saturday.

K. E. GRISBY, program chairman of the Taft chapter of the California Natural Gasoline Association, will have GLEN MILES and ROBERT DONALDSON as guest speakers to discuss "Increasing Isobutane Production" at the next monthly meeting.

S. H. CASTEEL, with Landreth Corp., Fort Worth, Tex., has been commissioned in the U. S. Naval Reserve with the rank of lieutenant commander, and will report in Washington this week for assignment. He had been with Landreth since 1925 as geologist.

V. I. POWELS, for 17 years associated with General Petroleum Corp. in various important capacities throughout the Pacific Coast, has been appointed manager of the company's Los Angeles, Calif., district.

TOM D. FOWLER, geophysical scout for Gulf Oil Corp., has been transferred from Fort Worth to Midland, Texas.

HARRY D. AGGERS, JR., has been made production foreman for Union Oil Co., with headquarters at Los Angeles, Calif.

C. A. BROOKS, exploitation engineer, Shell Oil Co., Inc., has been transferred from the East Texas division to White Castle, La.

GEORGE S. ANDERSON, former Fort Worth, Tex., independent operator, but who has been operating in California and more recently in the Illinois area, has moved his residence from Evansville, Ind., back to Fort Worth.

F. I. BRINEGAR, formerly with Continental Supply Co., has been named chief of the appraisal section of the transportation division of the Office of Petroleum Coordinator. For the past several weeks this section has been in charge of D. F. SEARS, who is chief of the pipe-line section, and Mr. Brinegar's appointment now leaves Mr. Sears free for pipe-line work.

Three more members of Magnolia Petroleum Co.'s land and scouting departments have recently gone into military service. W. P. "PAT" DUNCAN is now Ensign Duncan, called up for duty last week at Philadelphia, Pa. JOHN T. JONES enlisted in the Army. Both had been working out of the Dallas office. MARVIN S. JONES, Magnolia scout at San Antonio, Tex., also joined the Army. JIM FRED PRESSLEY, scout at Laredo, Tex., is being moved to San Antonio to replace Private Jones and henceforth will scout both the Laredo and the San Antonio districts.

BILL HUNKAPILLAR, former assistant seismologist in the geophysical department of Shell Oil Co., Inc., has been promoted from the rank of captain to that of major in the Army. He is executive officer of the Headquarters Battery of a field artillery observation battalion at Camp Sutton, North Carolina.

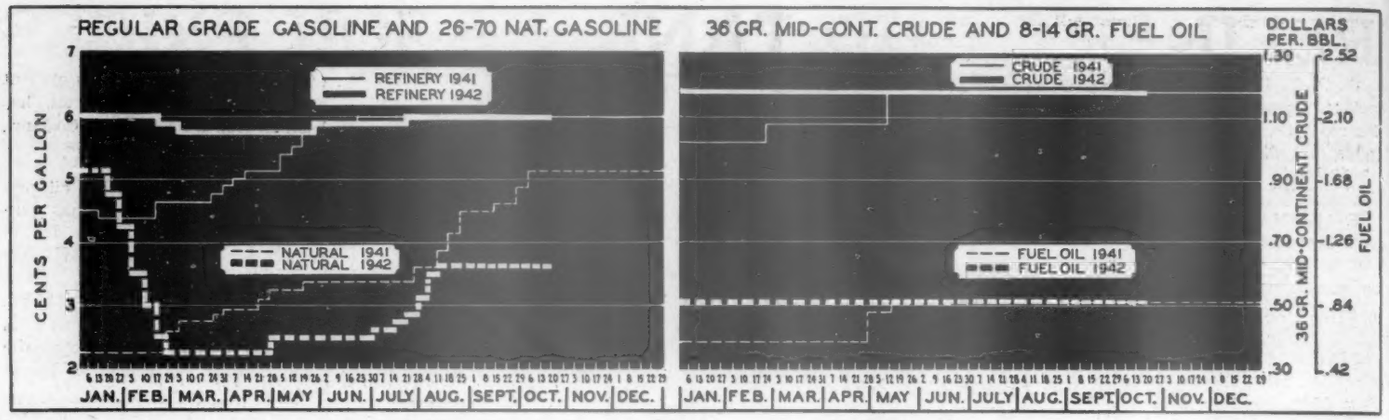
J. S. COSDEN, JR., has resigned as president of Cosco Oil Co. and has enlisted in the U. S. Marine Corps. He will be stationed at San Diego, Calif. Mrs. J. S. Cosden, Sr., has been elected president of the company, which operates a refinery at Wynnewood, Okla. JAMES NAGLE, of Midland Fuel & Oil Co., has been elected a vice president of the Cosco company.

Shifts: OLIN G. BELL, engineer, Humble Oil & Refining Co., Houston, Tex., to Colorado Springs, Colo.; JOE DAWSON, geologist, Coastal Oil Co., Evansville, Ind., to Mount Vernon, Ill.; J. P. GARNER, engineer, Texas Co., Gillette to Douglas, Wyo.; ROBERT F. HARTMAN, engineer, Standard Oil Co. of California, Richmond to Berkeley, Calif.; BURLIN E. FREEZE, engineer, Phillips Petroleum Co., Bartlesville to Seminole, Okla.

E. W. ESMAY, in charge of the public-relations department of the American Petroleum Institute which will be disbanded November 1, will become a member of the Petroleum Industry War Council staff in Washington.

DALLAS DEEN, of Fulton Iron Works, was chosen this week to head the Tulsa chapter of the Technical Club of Oklahoma and to succeed ROY BUSH, of Pittsburgh Equitable Meter Co. J. B. ZACHRY, of Worthington Pump Co., was chosen vice president to assume the duties of DAVID HAWTHORNE, of Amerada Petroleum Corp. CHARLES LUCKFIELD, of Stanolind Pipe Line Co., was reelected secretary and treasurer.

BRIG. GEN. HARRY H. JOHNSON, former assistant to vice president of Gulf Oil Corp., Houston, Tex., now commander of the Fifty-sixth Cavalry Brigade, U. S. Army, and stationed at Fort McIntosh on the Mexican border, recently had bestowed upon him the highest military decoration of the Mexican Government, the Order of Military Merit. The award took place at a ceremony in Monterrey, Mexico. The award has been bestowed on a foreigner only once before, having been sent to Gen. Douglas MacArthur. General Johnson has been with the Gulf organization for more than 25 years.



MARKET DEVELOPMENTS . . .

Mid-Continent

CONTINUED strong demand this week for all refinery products offered by Mid-Continent manufacturers was difficult to appraise in view of the imminence of gasoline rationing. There was no market evidence, however, that buyers anticipated any abrupt slump in product consumption for they were pressing suppliers in most instances for strict fulfillment of maximum-contract commitments.

Demand was especially brisk for all grades of fuel oil despite the impost of rationing and the general objective of reducing home heating-oil consumption by 33⅓ per cent. Sellers report jobber demand is virtually unaffected so far and point out that numerous new consumers have been added this year, including war plants that were either nonexistent in 1941 or were, at that time, only in the construction stage. There is considerable evidence that plants and machines engaged in the direct production of war materials along with lend-lease obligations and related demands will outweigh the curtailment among civilians.

Motor fuel is still in active call by northern jobbers who are doing a record volume of business this fall with farmers. The swing of farmers to use of gasoline in tractors, a marked trend in consumer habits over the past several years, is more pronounced this fall. Furthermore, the harvesting of bumper crops and the necessity for distributing them on a time schedule have moved this type of demand several notches up the scale.

Natural gasoline is strong at current quotations in the Oklahoma, Kansas, Illinois and North Texas manufacturing centers. Production is lagging behind current demand. Manufacturers are drawing on storage to a limited extent in order to satisfy customer requirements. Traders probably would advance their quotations under normal circumstances but for the moment are willing to await the impact of rationing before taking a stronger market position.

East Coast

NEW YORK.—The marked decline in gasoline consumption in the East Coast district is reported to have delayed the time when the excess transportation costs were scheduled to have been recovered by companies participating in the pool. It had been estimated that the goal would be reached by the end of October but a marked delay has resulted from the rationing of gasoline and a further delay as the result of fuel-oil rationing may be expected so that the date when the extra costs will be recovered is regarded as indefinite.

What action will be taken when the extra costs are compensated for fully is now a subject of conjecture. It is probable that the price increases authorized to enable the participating companies to meet the costs will be rescinded at least to some extent. It is regarded as possible that the full increases will not be rescinded but will be continued in some degree in order to compensate the companies for costs not absorbed by the existing plan.

The excessive demand for Pennsylvania lubricating oil, particularly bright stock, has resulted in runs to stills that have substantially exceeded production. As a result available stocks of lubricating oil, both finished and those represented by crude oil on hand, are at the lowest level in years. Since it has become apparent that producers of Pennsylvania crude oil cannot now meet demand and are unlikely to reach the 85,000-bbl.-per-day figure which the OPA set as condition for obtaining another 25-cent price increase, it is probable that representations for an immediate crude-price increase will be made to Washington.

SENTENCE SUMMARIES

MID-CONTINENT: Product prices steady. Natural-gasoline demand exceeds current supply. Fuel-oil inquiries undiminished.

EAST COAST: Pooling program indicates some relief from acute shortages. Fuel supplies for New England chief concern.

GULF COAST: Transportation chief problem of refiners. Lend-lease business increase stimulates general movement.

PACIFIC COAST: Market for all grades of fuel active. Refiners envisage possible gasoline shortage in 1943.

PENNSYLVANIA: Market follows routine lines. Neutral lubricating-oil demand improving with advent of colder weather.

A.P.I. REFINERY REPORT

Week Ended October 10, 1942

(Figures in thousands of barrels)

	Dly. crude runs to stills	Stocks: Gasoline	Stocks: Residual	Stocks: Gas oil
Appalachian	159	2,667	519	712
Ind., Ill., Ky.	731	14,066	3,428	6,053
Okla., Kans., Mo.	367	6,385	1,359	2,002
Censored area*	1,716	37,950	18,749	24,168
Rockies	92	1,650	537	430
California	701	17,013	54,089	12,642
Total Oct. 10, 1942	3,766	79,731	78,681	46,007
Total Oct. 3, 1942	3,879	80,361	79,036	45,750
Total Oct. 11, 1941	4,092	80,432	94,533	53,031

Note: Refinery runs and stocks for week ended October 17, 1942, appear on Trends page.

*Reports combined on East Coast, Texas Gulf, Louisiana-Arkansas and Inland Texas at request of OPC.

CRUDE-OIL STOCKS

(Bureau of Mines estimate)

Week ended:	Bbl. of crude*
October 10, 1942	239,121,000
October 3, 1942	241,179,000
October 11, 1941	243,571,000

*Excludes heavy, unrefinable stocks in California.

Gulf Coast

HOUSTON, Tex.—Conditions remained unchanged on the Gulf Coast this week with prices holding steady and sellers had little trouble finding buyers for all the oil they can ship. Demand for all products is strong so that any marketer who can arrange transport has no difficulty in making sales. There has been a small increase in shipments as the transportation tangles become slowly unsnarled.

The fact that the addition of natural gasoline to crude increases the capacity of pipe lines by reducing the viscosity of the crude is stimulating a lively demand for the former product. There is definite possibility that this type of natural-gasoline demand will increase as additional lines are reversed to supply the 24-in. line from Longview to Illinois. Nation-wide gasoline rationing is not expected to affect Gulf Coast markets to any great extent. The demand for fuel oil will probably require a further reduction of the gasoline yield from coastal refineries but the export market is expected to take up any slack resulting from a reduction in civilian consumption.

Pacific Coast

LOS ANGELES, Calif.—There has been considerable discussion recently among Pacific Coast refiners about the outlook for gasoline in the West Coast territory.

W. L. Stewart, Jr., executive vice president of Union Oil Co., recently stated that the possibility of a motor-fuel shortage existed but that the dominating influence would be the amount that the Government takes for military purposes.

The possibility of a gasoline shortage on the Pacific Coast is interesting because of plans under way to produce butadiene, a component of synthetic rubber, but using heavy naphthas as charging stock. If this program is carried out and the Government demands its estimated requirements for gasoline there is little basis for concern about rationing.

There were no price changes this week. Fuel oil and gas oil continue strong. Gasoline is moving sluggishly at low prices. Very little natural gasoline is moving in the spot market but prices are steady.

REFINERY AND TANK-WAGON PRICES

(Prices as of October 20)

Refinery Gasoline

Octane (A.S.T.M.):	†80	78	74-76	72-74	68-70	63-66	60 & lower
Mid-Continent*				5.875-6.000		5.500-5.625	5.125-5.250
Pennsylvania			6.750-7.000				
Gulf Coast‡	6.00-6.50			§5.750-6.250	§5.750-6.250	§5.250-5.750	§5.000-5.500
Northeast Coast	9.80			9.2	9.2		
Pacific Coast		6.500-7.000	6.250-6.500	6.125-6.250	5.750-6.000	5.125-5.250	4.750-5.000

*Basis Group 3. †1939 C.F.R. (research method). ‡Integrated companies restricted to lowest prices. §Unleaded.

Quotations are f.o.b. plant in cars and in cents per gallon except where otherwise noted. They are exclusive of the federal excise taxes of 1.5 cents a gallon on gasoline and 4.5 cents a gallon on lubricating oils, and do not include marine lighterage charges.

Natural Gasoline

Grades:	26-70	18-55	75-85(350-375)
Oklahoma (Group 3)	3.625	4.350	
North Texas	3.250	3.900	
North Louisiana	3.375	4.050	
California			4.875-5.500

Kerosene and No. 1 Fuel Oil

Gravity:	46	45	42-44	41-43	38-40
Mid-Continent*			4.500	4.375	
North Louisiana				4.500-4.750	
Pennsylvania	6.250-6.625	6.125-6.250			
California				4.500-5.500	4.250
Northeast Coast				6.80	
Gulf Coast				3.875	

*Basis Oklahoma Group 3.

Tractor, Diesel, and Bunker Fuel Oil

Specifications:	46-48° G.	24 D.I.	48-52 D.I.	58 & above	Diesel bunkers	Bunker C
Mid-Continent*	4.125					
California		2.750-4.000			‡$1.35-1.45	$0.85-0.90
Gulf Coast			4.000	4.125	1.45	0.85
Northeast Coast				6.800	2.780	1.65
North Louisiana						†0.80-0.85

*Basis Oklahoma Group 3. †10-14° gravity. ‡Pacific Specification 200.

Furnace Oil, Gas Oil, Fuel Oil

	No. 2	No. 3	No. 5	No. 6
Mid-Continent*	3.625-3.750	3.500-3.625	$0.85	$0.85
Pennsylvania (West)	5.875-6.125	5.875-6.000	†5.250-5.500	
Northeast Coast	6.7	6.7	1.95	1.65
Pacific Coast	5.5	5.5	†0.80-95	†0.80
Gulf Coast	3.875-4.0		1.65	0.85

*Basis Oklahoma Group 3. †36-40 gravity fuel oil. ‡Pacific Specification 300. §Pacific Specification 400.

Lubricating Oils

Bright and Steam Refined

OKLAHOMA (Group 3)—		
200-210 D, 10-25		27.00
150-160 D, 0-10		23.00
120-125 D, 0-10		22.00
Steam refined:		
600 dark green (untreated)	9.00	9.50
PENNSYLVANIA—		
Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):		
10 pour point		30.50
15 pour point		29.50
25 pour point	25.00	28.00
Steam refined:		
600	15.00	16.00
650	15.50	16.50
600 flash	16.00	17.50
630 flash	17.00	17.50

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—	
0-10 pour point:	
200-3	15.00
300-3	18.00
500-3	19.50
600-3	20.00

Note: Viscous neutrals, 10-25 pour, quoted 0.5 cent under 0-10 oils.

Neutral Oil

CALIFORNIA		
Pale oils:		
200-2½-3	7.00	7.75
400-3-4	7.25	8.00
600-3-4	8.75	11.00
Red oils:		
200-4-5	7.00	7.75
400-5-6	9.00	11.00
500-900, 5-6½	9.25	11.25
GULF COAST—		
Pale oils:		
200-3	8.50	8.75
300-3	9.00	9.25
500-3½	9.75	10.00
750-3½	10.00	10.25
2,000-4	10.50	10.75
3,000-4	12.25	12.50
PENNSYLVANIA—		
150 vis. at 70° F., 3 color, 400-405 flash:		
Zero pour point		37.50
10 pour point		36.50
15 pour point		35.50
25 pour point		30.00
200 vis., at 70° F., 3 color:		
Zero pour point		39.50
10 pour point		38.50
15 pour point		37.50
25 pour point		32.00

Wax

(Cents per pound)

OKLAHOMA (Group 3)—	
124-126 (A.m.p.) w.c. scale	4.250
PENNSYLVANIA (inland refineries)—	
122-124 (A.m.p.) w.c. scale	4.250
124-126 (A.m.p.) w.c. scale	4.250
NEW YORK—	
Wax in bags fully refined:	
130-132 (A.m.p.) wax	5.850
133-135 (A.m.p.) wax	6.150
Crude scale:	
124-126 (A.m.p.) w.s.	4.250
124-126 (A.m.p.) y.s.	4.250

EXPORT PRICES

Gasoline—60-62° Gravity, Maximum 400 End Point

Octane:	72-74	68-70	65-66	60
Gulf Coast	6.500	6.250-6.500	5.875	5.625
Pacific Coast		6.125-6.500	5.875-6.000	5.500-5.625

Distillate and Fuel Oil

	Kerosene	Diesel fuel			Bunker
	41-43	24 G.	48-52 D.I.	58 D.I. Bunkers	C grade
Gulf Coast	4.000-4.250		4.125-4.375	4.375 $1.65-80	$0.85-90
Pacific Coast	4.750-5.000	1.25-30		†1.35-45	*0.80-90

*Pacific Specification 400. †Pacific Specification 200

Lubricating Oils

	Neutral oils		Bright and cylinder stocks		
	200-3	150-3	200-3	150-3	600&630 S R
Mid-Continent	16.8		28.8	24.8	
Pennsylvania	43-50	41-46	36-37	36-37	26.5-27

GASOLINE AND KEROSENE TANK-WAGON PRICES IN 50 CITIES

(Gasoline prices based on regular grades, tax included, undivided dealer)

ATLANTIC AND NEW ENGLAND

(Socony-Vacuum Oil Co., Inc., and Atlantic Refining Co.)

	Dealer tank wagon	Combined tax	Kero. tank wag.
Baltimore, Md.	15.45	5.50	10.20
Boston, Mass.	14.90	4.50	9.50
Burlington, Vt.	16.90	5.50	
Buffalo, N. Y.	16.20	5.50	10.30
Dover, Del.	16.70	5.50	11.20
Hartford, Conn.	15.60	4.50	
Manchester, N. H.	17.30	5.50	10.50
Newark, N. J.	14.70	4.50	9.40
New York, N. Y.	16.10	5.50	9.50
Philadelphia, Pa.	16.20	5.50	11.65
Pittsburgh, Pa.	16.70	5.50	12.00
Portland, Me.	16.30	5.50	9.60
Providence, R. I.	15.00	4.50	9.30
Washington, D. C.	14.70	3.50	10.70
Average 14 cities	15.91	5.07	10.32

(All prices undivided dealer basis.)

CENTRAL

(Standard Oil Co. of Indiana, Standard Oil Co. of Ohio, Continental Oil Co. and Texas Co.)

	Dealer tank wagon	Combined tax	Kero. tank wag.
Chicago, Ill.	13.40	4.50	10.30
Cleveland, Ohio	15.00	5.50	*9.00
Dallas, Tex.	13.00	5.50	7.00
Des Moines, Iowa	14.40	4.50	9.80
Detroit, Mich.	14.40	4.50	9.60
Fargo, N. D.	16.90	5.50	11.30
Huron, S. D.	16.30	5.50	10.70
Indianapolis, Ind.	15.20	5.50	9.80
Little Rock, Ark.	17.50	8.00	10.00
Milwaukee, Wis.	16.10	5.50	10.50
Minneapolis, Minn.	15.40	5.50	10.30
Omaha, Neb.	15.40	6.50	9.80
Tulsa, Okla.	16.50	7.00	8.50
Wichita, Kans.	12.70	4.50	8.00
Average 14 cities	15.15	5.57	9.61

*Includes 1-cent state tax.

SOUTHEASTERN

(Standard Oil Companies of New Jersey, Kentucky, and Louisiana)

	Dealer tank wagon	Combined tax	Kero. tank wag.
Atlanta, Ga.	21.40	7.50	11.40
Birmingham, Ala.	18.50	8.50	9.00
Charleston, S. C.	18.45	7.50	
Charleston, W. Va.	18.75	7.50	13.00
Charlotte, N. C.	19.60	7.50	11.00
Jacksonville, Fla.	21.40	8.50	10.40
Jackson, Miss.	17.50	7.50	8.50
Louisville, Ky.	16.50	6.50	8.50
Memphis, Tenn.	18.60	8.50	10.50
New Orleans, La.	16.75	8.50	*10.00
Norfolk, Va.	16.95	6.50	13.50
Average 11 cities	18.58	7.59	10.58

*Includes 1-cent state tax.

MIDWESTERN

(Continental Oil Co.)

	Dealer tank wagon	Combined tax	Kero. tank wag.
Albuquerque, N. M.	17.50	7.50	10.00
Boise, Idaho	20.10	6.50	16.50
Casper, Wyo.	17.00	5.50	12.00
Denver, Colo.	14.50	5.50	11.00
Helena, Mont.	17.00	6.50	13.00
Phoenix, Ariz.	18.50	6.50	12.50
Reno, Nev.	17.50	5.50	13.50
Salt Lake, Utah	18.50	6.50	14.50
Average 8 cities	17.58	6.25	12.88

PACIFIC COAST

(Standard Oil Co. of California)

	Dealer tank wagon	Combined tax	Kero. tank wag.
Portland, Ore.	17.00	6.50	13.50
San Francisco, Calif.	14.50	4.50	11.50
Seattle, Wash.	17.00	6.50	13.50
Average 3 cities	16.17	5.83	12.83
Average 50 cities	16.57	5.96	10.76
Average last week	16.57	5.96	10.76

Canadian Fields

(Continued from Page 99)

of 50 wells, though the actual extent of drilling operations would depend upon the results of tests.

Gaspe Operations

In the Gaspe Peninsula of Quebec, Continental Petroleums, sponsored by Paul Payette and associates of Montreal, has been organized to handle development of a concession of 85,000 acres taken over from the Payette group. The acreage is subject only to royalties to the province of Quebec, the maximum being 12½ per cent if production in any 3-month period exceeds 200 bbl. daily, with 10 per cent if under 200 and above 50 bbl. daily and 5 per cent if under 50 bbl. daily, for any 3-month period. The province waives the usual annual rental of $1 an acre on the entire 85,000 acres till such time as a minimum production of 500 bbl. daily is obtained, with royalties to apply as rental credits after that time. Credit on rentals will also be given for all moneys expended on road and camp building, geological work and drilling prior to reaching the 500-bbl. daily production.

Continental No. 1 has been located in Block 42, Galt Township, on the Galt Brook dome. Continental 2 is on the Bald Mountain anticline in Fletcher Township, approximately 11,100 ft. north of the confluence of Patch Brook and York River. The acreage is almost entirely in unsurveyed territory.

CRUDE-OIL PRICES

Representative selected crude prices from all sections of the country appear below:

East Texas	$1.25
Conroe	1.43
Tepetate, Louisiana	1.18
Illinois basin	1.37
Pecos County, Texas	.95
Bradford, Pennsylvania	3.00
Van, Van Zandt County, Texas*	1.08

*No change since 5-21-41.

Gravity Schedules

Top prices include all gravities above grades designated, and low prices include all gravities below grades designated:

Gravity	Signal Hill, Calif.	Oklahoma, Kansas	Gulf Coast, Texas	West Texas*
18-18.9	$0.80	....	....	....
19-19.9	.84	....	$1.06	$0.70
20-20.9	.88	$0.85	1.08	.72
21-21.9	.92	.87	1.10	.74
22-22.9	.96	.89	1.12	.76
23-23.9	1.00	.91	1.14	.78
24-24.9	1.03	.93	1.16	.80
25-25.9	1.07	.95	1.18	.82
26-26.9	1.11	.97	1.20	.84
27-27.9	1.15	.99	1.22	.86
28-28.9	1.18	1.01	1.24	.88
29-29.9	1.20	1.03	1.26	.90
30-30.9	1.22	1.05	1.28	.92
31-31.9		1.07	1.30	.94
32-32.9		1.09	1.32	.96
33-33.9		1.11	1.34	.98
34-34.9		1.13	1.36	1.00
35-35.9		1.15	1.38	1.02
36-36.9		1.17	1.40	1.04
37-37.9		1.19	1.42	1.06
38-38.9		1.21	1.44	1.08
39-39.9		1.23	1.46	1.10
40 and above		1.25	1.48	1.12

*Includes Lea County, New Mexico.

Petroleum Division, A.I.M.E. To Meet in Austin, Oct. 29

THE Petroleum Division of the American Institute of Mining and Metallurgical Engineers will hold the second of its two fall meetings at Austin, Tex., October 29-31, with the Gulf Coast Section and the University of Texas Affiliated Student Society A.I.M.E. cooperating. The sessions and the informal dinner will be held at the Stephen F. Austin Hotel.

The meeting will be on a strictly war basis and the entertainment features have been dispensed with.

The two Thursday sessions will be devoted to petroleum technology, including research and engineering papers. The Friday afternoon session will be on economics and the war, and the Saturday session will be given over to semitechnical papers describing new industrial developments which may have a far-reaching effect on the economy of Texas and the Southwest.

Harry P. Stolz, chairman of the Petroleum Division, will preside at the informal dinner Friday evening.

Following is the program:

Thursday, October 29

9:30 a.m. Mezzanine Floor. Registration of all members and guests. Registration fee is $2 for all except Student Associates, who will be guests of the Gulf Coast Section.

10:00 a.m. First Technical Session. Ball Room, Stephen F. Austin Hotel. A. G. Loomis, chairman; H. H. Powers, cochairman.

Surface-Energy Relationships in Petroleum Reservoirs. (T.P. 1526; preprint.) By H. K. Livingston, E. I. du Pont de Nemours & Co.

Desirable Features of Nonthixotropic Drilling Muds. By Eldon A. Means, consulting chemist.

The Nature of Drilling Muds. By G. A. Fancher, University of Texas.

The Effects of Certain Gums and Starches on Filtration of Drilling Muds at High Temperatures. By B. C. Craft and Frank Perkins, Jr., Louisiana State University.

Drainage of Liquids From Unconsolidated Wilcox Sand. By R. L. Huntington and Roscoe Stahl, University of Oklahoma.

1:30 p.m. Second Technical Session.

D. L. Katz, chairman; P. E. Fitzgerald, cochairman.

The Role of Capillarity in Oil Production. By G. L. Hassler, Shell Development Co.

Effect of Casing Perforations on Well Productivity. (T.P. 1528, preprint). By M. Muskat, Gulf Research & Development Co.

Mud Acid, Its Theory and Application. By Phil Lehnhard, Dowell, Inc.

Asphaltic Substances in Crude Oils. (T.P. 1514; Petr. Tech., Sept.). By G. W. Preckshot, N. G. DeLisle, C. E. Cottrell, and D. L. Katz, University of Michigan.

Electric Exploration for Oil. By H. M. Evjen, Elflex Co.

Relationship of Oil Saturation to Flooding Efficiency. By R. C. Earlougher, Geologic Standards Co.

Gravitational Segregation in Oil Production. By James O. Lewis, consulting engineer.

Friday, October 30

9:00 a.m. Third Technical Session. C. E. Reistle, Jr., chairman; C. H. Keplinger, cochairman.

A Geological and Engineering Reconnaissance Study of the Adams Oil Field, Arenac County, Michigan. By Lee S. Miller, Lucille Esch, and R. P. Grant, Geological Survey Division, Michigan Department of Conservation.

Reservoir Analysis and Geologic Structure. (T.P. 1527; preprint). By J. M. Bugbee, Baroid Sales Division, National Lead Co.

Analysis of Reservoir Performance. (T.P. 1529: preprint). By R. E. Old, Jr., Core Laboratories, Inc.

Steel Warehouses to Receive Specific Emergency Tonnage

WASHINGTON, D. C.—To make a reasonable tonnage of steel products continuously available for emergency purposes, a new system governing distribution of steel products to warehouses will be put into effect November 1.

Producers who normally supply warehouses are being directed to ship definite tonnages of specific products to warehouses each month on rated orders.

These "earmarking" instructions are supplemental to the steel production directives which have been issued by the Iron and Steel Branch for the past 2 months.

Virtually all of the steel products obtained by warehouses under the system to take effect November 1 will flow directly into the war production program or into other essential uses, such as maintenance materials for petroleum operations.

Under Order M-21-b, as amended, warehouses are permitted to sell most steel products only on A-1-a or higher rated orders, except for small percentages sold under repair and maintenance orders such as P-98-b.

The over-all monthly tonnages needed for distribution by warehouses will be determined by the Iron and Steel Branch. The tonnage required then will be divided among producing mills, according to the pattern of orders they have on hand from warehouses. Varying regional requirements as well as the over-all production obligations of each mill also will be taken into consideration.

The instructions sent to the mills are called "warehouse load directive," and generally instruct the mill to consider a specific tonnage of a specific steel product (such as structural shapes, etc.) as a monthly "warehouse load."

OPC Revokes Two Directives And Parts of a Third Order

WASHINGTON, D. C.—The Office of Petroleum Coordinator has revoked its formal Recommendations 36 and 43, and parts of its Directive 50, all dealing with specific arrangements for transporting oil to the eastern area.

The revocations were dated October 1 and consequently antitrust law immunity has terminated.

Recommendation 36 was directed to the Transportation Committee of District 1 and required the operation of a plan for allocating tanker tonnage among petroleum suppliers. The recommendation was revoked and the plan terminated because the War Shipping Administration is now directing all tanker movements.

Recommendation 43 covered a somewhat similar plan for allocating tanker space in District 3 and for the exchange of products under the supervision of the supply and distribution subcommittee.

Directive 50 also concerned increasing the supply of oil to the East. Paragraphs revoked are Nos. 5, heavy fuel oil from District 3; 6, heavy fuel oil from District 2; crude oil from East Texas; 9, lake tanker movement of gasoline; and 10, gasoline-supply sources of the Southeast.

DEATHS

HAROLD W. FLETCHER, 51, vice president and general manager of Hughes Tool Co., Houston, Tex., died October 15. Mr. Fletcher was born in Brooklyn, N. Y., and received his college education at Cornell University, from which he was graduated with honors in engineering in 1915. He began his connection with Hughes Tool Co. as an engineer in 1916. In 1918 he was promoted to chief engineer, a position he held until his promotion to vice president and general manager 3 years ago. During his years with the company he developed a number of inventions, chiefly concerned with the oil industry. He was a member of the American Society of Mechanical Engineers, the American Institute of Mining and Metallurgical Engineers, the American Petroleum Institute, and of Sigma Xi fraternity. Surviving Mr. Fletcher are his widow, a daughter and two sons.

TOM ARTHUR STANCLIFF, 52, Pecos Valley oil operator and resident of Roswell, N. M., since 1904, died in Roswell October 9 of a heart attack. He is survived by his widow and three stepsons.

WELLS DORR MONTGOMERY, 67, independent oil operator of Tulsa, died last week in a Tulsa hospital of a heart attack. A native of Pennsylvania, where he began his career in the oil business, Mr. Montgomery came to Tulsa in 1916 and was associated with Tidal Oil Co. In recent years he operated his own company. His widow survives.

CHARLES ERVIN, 63, traffic manager for Texas Co. for 36 years, died at his home in Jacksonville, Tex., last week. He made his home in New York City until May 1941, when he became ill while visiting in Jacksonville. He retired from his position with Texas Co. last July. His widow and a daughter survive.

H. H. FORTNEY, 65, a resident of Tulsa for 22 years, who was connected with Sun Rig Co., Seminole, Okla., died last week in a Tulsa hospital, following an illness of 7 weeks. His widow, a daughter and three sons survive.

LOUIS STEKOL, 52, oil-field equipment dealer of Okmulgee, Okla., died in Okmulgee last week. He had been in ill health for several months. His widow, a daughter and three sons survive.

GIFFORD E. EXLEY, 59, superintendent of leases for Bundred Oil Corp., Oil City, Pa., died in an Oil City hospital last week. He had been in ill health for some time. His widow, three daughters and a son survive.

DAVID NEWTON REYNOLDS, 80, Washington, Pa., veteran of the oil fields, died October 9 following a short illness. He had worked for a number of years with C. C. Chamberlain, oil producer in the Pennsylvania fields. Four daughters survive.

EQUIPMENT PROGRESS...

Chain Belt Co. Awarded Army-Navy "E"

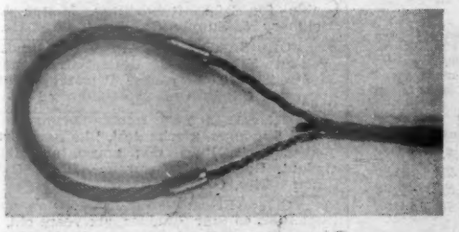
On September 19, in the presence of over 4,000 employes and their families, Chain Belt Co., 1639 West Bruce, Milwaukee, Wis., was awarded the Army-Navy "E" Production Award. J. C. Merwin, president of the company, in an address of welcome, read a

Capt. D. D. Dupre, U. S. N., awarding lapel insignia to representative employes

letter from Winston Churchill written after the first World War, expressing the appreciation of the British Government for the cooperation Chain Belt Co. gave them toward winning the war. Brig. Gen. A. G. Gillespie, commandant of the Watervliet Arsenal, New York, spoke briefly at the ceremonies on the significance of the award. Lt. Col. D. J. Martin, chief of the Cannon and Aircraft Armament Section, Artillery Division, Office of the Chief of Ordnance, War Department, made the presentation of the "E" burgee to J. T. Brown, vice president of the company, who accepted it for the company. Capt. D. D. Dupre presented token Army-Navy lapel insignias to a number of employes. Julius P. Hall, governor of Wisconsin, made the closing remarks.

Roebling "Flatweave" Flexible Wire Rope Slings

"Flatweave" is a trade name of a new wire rope sling developed by John A. Roebling's Sons Co., Trenton, N. J., to meet a universal need for a light, flex-



ible, nonkinking, nonspiraling sling to handle loads more easily. It was developed specifically for lifting light and medium loads where the legs choke the load or the sling comes in direct contact with the load being lifted.

"Flatweave" slings have a flat bearing surface which allows an even pressure on each of the six ropes which comprise the sling, thereby prolonging its useful life. Being flat and flexible, they are easily passed through or under the load.

The "Flatweave" body is made up of six separate ropes. Two pairs of ropes each are laid in opposite directions. These are united into a finished sling unit by two single tie ropes which alternately pass back and forth around one pair and then the other in a spiral figure 8. This method of construction eliminates the possibility of any scissors or shearing action between the various ropes.

The "Flatweave" pattern develops a high strength efficiency which is equaled by the high efficiency of the specially constructed loops. The same safe loads can therefore be allowed with loops as with socketed ends. The loops, which can be used as chokers without the use of thimbles, are generously proportioned and easily slip over crane hooks or lifting lugs.

AMONG EQUIPMENT MEN

Lone Star Cement Names Changes in Officials

Lone Star Cement Corp., 342 Madison Avenue, New York City, announces the appointment of Purd B. Wright, Jr., as manager of its "Incor" division and as advertising manager, to succeed Dewey Thompson, resigned, effective October 1, 1942.

Pittsburgh Steel Advances Two

H. A. ROEMER, JR.

Pittsburgh Steel Co., Pittsburgh, Pa., announces the promotion of two members of its sales organization, Henry A. Roemer, Jr., formerly manager of sales of steel and wire products, is advanced to assistant general manager of sales, and Norman F. Melville, formerly assistant manager of sales of steel and wire products, has been made manager of sales of that department.

Sessions Chief Engineer of Brown Fintube Co.

Robert C. Sessions, of the consulting engineering firm of Sessions & Sessions, Cleveland, Ohio, has been appointed chief engineer of Brown Fintube Co., Elyria, Ohio. Mr. Sessions, who is a member of A.S.M.E. and A.I.E.E., was graduated from Worcester Polytechnic Institute in 1919 in electrical engineering. He was a fellow of the American Scandinavian Foundation in Sweden during 1919 and 1920, and was for some time in charge of the engineering and experimental division of Steel & Tubes, Inc., before entering consulting work. The firm of Sessions & Sessions, consulting engineers, is being continued with offices in the Rockefeller Building, Cleveland, under the direction of Frank L. Sessions, senior partner of the firm.

ROBERT C. SESSIONS

Schnitter Returns to Trinidad

S. B. Schnitter, who represents Baker Oil Tools, Inc., B. & W., Inc., and Fluid Packed Pump Co. in Trinidad and Venezuela, returned by air to Port of Spain, Trinidad, British West Indies. Mr. Schnitter spent 6 weeks visiting principal oil fields in the Gulf Coast, Mid-Continent and on the West Coast, to study recent drilling and completion developments.

Tube Turns First Kentucky Plant To Win Army-Navy "E" Flag

Tube Turns, Louisville, Ky., recently won the distinction of being the first war-industry plant in the State of Kentucky to receive the Army and Navy "E" flag for outstanding production efficiency.

National, state and local industrial and military lead-

W. H. Girdler, Sr., president of Tube Turns, receiving the Army and Navy "E" flag from Brig. Gen. R. E. Hardy, chief, ammunition division, U. S. Army. Seated in front row at left is T. M. Girdler, chief executive officer, Consolidated Aircraft, and chairman of board, Republic Steel Corp. Standing at right is Melvin Thurman, plant employe who received the "E" pin on behalf of the employes from Lt. Comdr. C. E. Briner, inspector of ordnance in charge, U. S. Naval Ordnance plant, at Louisville, who is seated at extreme right

ers attended the brief, colorful ceremonies at the plant on September 18, at which the award was presented before a crowd of more than 3,000 employes and their families. W. H. Girdler, president of the company, accepted the award. Individual Army-Navy "E" pins were later distributed to every employe.

The Tube Turns company, manufacturer of Tube-Turn welding fittings, and an affiliate of Girdler Corp., produces a variety of critical forged materials for Army ordnance, the aviation industry and other vital war purposes.

Cathodic Corrosion Eliminator Rectifiers Available in 60 Sizes

A line of cathodic corrosion eliminator rectifiers is offered by Good-All Electric Manufacturing Co., Ogallala, Neb., which are available in both single and three-phase connections. Sixty sizes are offered in d.c. voltages, from 8 to 56 volts, and from 10 amp. to 100 amp., d.c. output. The company claims that with the installation of the proper-sized rectifiers, corrosion or deterioration of underground pipes, tanks and all types of metal structures can be retarded, and eliminated to a great extent. These rectifiers are being extensively used by oil and pipe-line companies. It is also claimed that because there are no rheostats used in the rectifiers, their efficiency will run up to as high as 77 per cent. Each rectifier is equipped with a magnetic circuit breaker, which offers full protection in case of unexpected damage or overload. The circuit is further protected by a thermostatically controlled switch which is actuated by the heat generated in the selenium rectifier units. A complete catalog is available on request.

CLASSIFIED ADVERTISING

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Patent Law Offices
418 Bowen Bldg., Washington, D. C.

Leases and Drilling Blocks

LEASES—East Texas, La., South Ark. 20 acres up, dollar acre up.—Owners—Address Attorney, Box 1122, Little, Rock, Ark.

LEASES ROYALTIES

PRODUCING OR NONPRODUCING

Texas, New Mexico, Oklahoma, Louisiana and Illinois
20 Years' Experience
Inquiries Invited

B. D. BUCKLEY
60 Broadview Drive, Clayton St. Louis, Mo.

FOR SALE: Oil and Gas Leases on proven structures, drilling propositions, small production and fluorspar deposits. Reports furnished. W. P. Harley, Bowling Green, Kentucky.

WANTED TO BUY: Crude oil producing properties. Give number of wells, location, field, daily production, acreage, and price in first letter. Box B-290, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE: Oil and gas leases North and South Dakota, reasonably priced. Owner, P. O. Box 1163, Tulsa, Oklahoma.

FREE LEASE for well N.E. 17-11-15, N.E. 17-12-15, N.E. 24-14-13, Russell Co., Kans. None over 2 mi. from production. American Investment Corp., Newman Grove, Nebr.

GEORGIA
Deep Drilling now on in Georgia. For information write, C. W. DEMING, Waycross, Ga.

8000 ACRE STRUCTURE full geology, geophysical, cored, equipped rotary & cable. Contractor drafted. Must deal for completion. S. W. Pressey, Pueblo, Colo.

Ranches and Farm Lands

FOR INVESTMENT with great opportunity from oil, buy land developing R.M. area. $7. acre. Box B-321, The Oil and Gas Journal, Tulsa, Okla.

Financing

CAPITAL SEEKERS — Interested in raising $25,000 or more for a legitimate project should communicate with AMSTER LEONARD, Fox Theater Bldg., Detroit, Mich.

Incorporation

DELAWARE CHARTERS; Complete service $35. Submitted forms. Chas. G. Guyer, Inc., Wilmington, Delaware.

Business Opportunities

REFINERY FOR SALE. For particulars write to Albany Oil and Refining Company, Box 433, Laramie, Wyoming.

FOR SALE: Timber lands; manganese, cinabar, antimony, lead, zinc, and copper lands. For prices, options, and terms write G. E. Crowley, Waldron, Ark.

IN OKLAHOMA mining field 400 fine ranch farm land, improvements, four developed zinc mines shafts sunk ready be equipped placed production. Address O. D. Baker, Miami, Okla.

Royalties

ANDREW J. BARRETT
The Philtower
Tulsa, Oklahoma.

WE BUY & SELL all types of Oil and Gas Royalties. Sales restricted to registered dealers only. Grimes Royalty Co., National Mutual Bldg., Tulsa, Okla.

OIL PRODUCERS urgently need these 2-U. S. and 1 Canad. Patents for the Extraction of Oil from exhausted formation of Petroleum and Oil bearing sands, for sale or in royalty by Leo Strandell, Lometa, Calif.

FOR SALE: Landowner's Royalty under 160 acres leased to Humble Oil & Ref. Co. in Lea Co., N. M. North of the Big Hobbs Pool. 27 pools in County, HARRY S. WRIGHT, FARMINGTON, N. M.

Oil Industry Printing

OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press 215 East Third St., Tulsa, Okla.

Legal Blanks

THE BURKHART LINE of Legal Blanks Since 1908. Oil-Gas and Business Forms for Mid-Cont. and Illinois Basin. Leases Rev. with Gov.'s Regulations. Catalog and Samples. Burkhart Ptg. & Sta. Co., 115 So. Cincinnati, Tulsa, Okla.

Situations Wanted

THOROUGHLY EXPERIENCED oil executive; accounting, leasing, drilling, equipment, and production. Box B-320, The Oil and Gas Journal, Tulsa, Okla.

Help Wanted

NOTICE TO ADVERTISERS

Advertisers offering positions to workers skilled in critical war industries are requested by the War Manpower Commission to include the following sentence in their advertisement:

"Applications from those now employed in war industries will not be considered."

ENGINEERS WANTED
Chemical or Mechanical with minimum one year oil refinery plant operation or maintenance experience. Require University Engineering School graduate with basic knowledge principles fluid flow. To work on process flow sheets, equipment selection and general handling oil refinery. Defense Contracts as assistant to senior engineers. No aliens or men engaged Defense work considered. Opportunity up to individual. In reply state experience, education, draft status, salary expected. Foster Wheeler Corporation, Room 2402, 165 Broadway, New York.

BLACKSMITH WANTED

Must have experience and ability to get out production on either 3000 or 5000 pound flat die hammer. Jar-maker preferred. In reply state experience, age, references, wages expected. Applications from those now employed in war industries will not be considered. Acme Fishing Tool Co., Parkersburg, W. Va.

If we do not maintain a classification exactly suited to the type of advertisement you wish to run we shall be glad to create a fitting one. *Classified Department.*

For Sale—Instrumen's

Complete Stock

Reconditioned Instruments

INSTRUMENTS INCORPORATED

6725 SNIDER PLAZA DALLAS

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	1 time	2 times	3 times	4 times		1 time	2 times	3 times	4 times
3 Lines	*$1.05*	*$1.80*	*$2.55*	*$3.30*	*7 Lines*	*$2.45*	*$4.20*	*$5.95*	*$7.70*
4 Lines	*1.40*	*2.40*	*3.40*	*4.40*	*8 Lines*	*2.80*	*4.80*	*6.80*	*8.80*
5 Lines	*1.75*	*3.00*	*4.25*	*5.50*	*9 Lines*	*3.15*	*5.40*	*7.65*	*9.90*
6 Lines	*2.10*	*3.60*	*5.10*	*6.60*	*10 Lines*	*3.50*	*6.00*	*8.50*	*11.00*

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1 Inch	*52 times*	*3.50 per inch*

This space may be contracted for over a period of one year from the date of the first insertion and is PAYABLE IN ADVANCE, MONTHLY.

We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

Equipment Wanted

WANTED TO BUY

Pipe of all sizes, 2" to 16", inclusive, also refineries, pipe lines and abandoned wells. Wire, write or phone

Louisiana Iron & Supply Co.
Shreveport, La.

WANTED: Used wax molding press. Please state condition, location, and price. Box B-293, The Oil and Gas Journal, Tulsa, Okla.

WANTED

Abandoned *Pipe Lines*, in or out of the ground, *Oil Wells*, *Steel Buildings* and Steel Storage *Tanks* of all sizes.

JOS. GREENSPON'S SON PIPE CORP.
National Stock Yards, St. Clair Co., Illinois.

WANTED: 3—25 HP type 7E Bessemer or Hope Engines with direct connected compressor.

1—Two stage high pressure compressor to develop minimum of 20 cu. ft. per minute, suitable for making into V-belt drive.

THE VEEDER SUPPLY & DEVELOPMENT COMPANY
Cherryvale, Kansas.

WANTED — Steel tanks total 120,000 gallon capacity. Will take 5000 gallon or larger. Tidewater Equipment & Machinery Corp., 305 Madison Ave., New York, N. Y.

ATTENTION INVENTORS
Old established Pacific Coast Manufacturing Company is interested in acquiring patented or patentable items for manufacture on either outright purchase or royalty basis. Box B-251, The Oil and Gas Journal, Tulsa, Okla.

WANTED: Inside Micrometers, range 2 in. to 14 in.; also outside micrometers, same range. Would consider instruments covering part of these ranges. In reply give make, style, graduations, and price. TALCO ASPHALT & REFINING DIVISION OF SOUTHPORT
P. O. Box 1011, Mt. Pleasant, Texas.

For Sale—Equipment

FOR SALE: Complete Wilson Portable Rotary Rig with telescoping mast, suitable for 2,000 ft. drilling. Melton Machinery & Supply Co., Seminole, Okla.

FOR SALE: 50—5½" OD Standard IBBM NRS SE CI Gate Valves, unrepaired. $10.00 each. Patridge, Cities Service Oil, Bartlesville, Okla.

FOR SALE: Two Double Drum Cardwell Spudders, mechanical, like new. Complete tools, lines, dog house, and light plant. Room 314, Insurance Bldg., Oklahoma City, Okla.

FOR SALE or Trade for Shallow Production: 45 Star Spudder, six years old, in fine shape. Good cordage. Tools 15" to 6⅝". Spang bits, boxes and pin. 60 HP Cat. tractor for power. C. N. Phillip, Gridley, Kansas.

TANKS FOR SALE
220,000 gal. 43' x 20' Steel Tank. 1—14.000 gal. and 2—11,000 gal. and 1—8,000 gal. Steel Tanks. 12—9' x 8' Wood Tanks.
L. M. STANHOPE
Wayne, Penna.

COMPLETE standard cable outfit, also 2 machines 1500' capacity. Full line tools. P. O. Box 614, Pueblo, Colo.

FOR SALE—At bargain prices, a large quantity of magnesium rock wool and pipe insulation. Inquire Eason Oil Company, Enid, Okla.

CLASSIFIED ADVERTISING . . .

For Sale—Equipment | For Sale—Equipment | For Sale—Equipment | For Sale—Equipment

COMPLETE DUBBS REFINERY FOR SALE

Vis-Breaker, Topping and Asphalt Plant

4,000 barrel topping—2,000 barrel Vis-Breaker—500 barrel Asphalt—Less than 25,000 barrels of crude ever put through this plant. Complete instrument board, new, never hooked up. Electric eye control. Electric salt Settlers. Pump house complete with explosion proof motor driven centrifugal pumps.

18 heat exchangers. Over 50 tanks from 250 barrels to 25,000 barrels included. Car load Ethyl plant. Latest type of equipment offered for sale by any refinery.

Location: Titan Oil Co., Stark, Mich. (Detroit suburb) For sale in its entirety, parts or will lease in its entirety. Have complete Universal Oil Company's inspection report, together with all blue prints.

SONKEN-GALAMBA SUPPLY COMPANY

W. C. Berry or H. J. Galamba
Riverside at Second, Kansas City, Kansas

Robert W. Duden
Twenty-First at Union, Tulsa, Oklahoma

F&M Power Pump, 3" x 4", excellent condition. Also Centrifugal and Steam Pumps. GILBERT PIPE & SUPPLY, Electra, Tex.

1 COOPER-Bessemer 3 cylinder engine. Type G M R size 12" x 14", 225 HP direct connected to Cooper-Bessemer Compressor, high side 12" x 14", low side 6½" x 14". Excellent condition. Box B-291, The Oil and Gas Journal, Tulsa, Okla.

STORAGE TANKS, Vessels, Towers, Pumps, Engines, Compressors, Meters, etc. GILBERT PIPE & SUPPLY, Electra, Tex.

FOR SALE: Gypsie Spudder, for Rods and Tubing clean out work, light drilling; 60 foot mast, Drilling Line, Sand Line. Ray A. Lyons, or Davis Supply Co., Oilmont, Montana. Price $750 cash.

FOR SALE: Approximately 250—2", 3", 4" and 6" LH EH SL UP Klein Pipe Tongs, used. $1.00 per inch per tong. Patridge, Cities Service Oil, Bartlesville.

BUCKEYE Model 15 ditching machine. Good condition. T. & L. Construction Co., P. O. Box 79, Phone 2653, Centralia, Ill.

FOR SALE: 7⅛ x 14 Oil Well Power Slush Pump. Melton Machinery & Supply Co., Seminole, Okla.

25 K.W. and 40 K.W. Gas Engines, 220 volts, D.C. Two 100 K.W. Gas Engine-Generator Sets, 220 volts, D.C. 7x6 Ingersoll-Rand ER-1 Air Compressor. Six-inch Oster Pipe Threading Machine. Also large stock of lathes, pipe machines, milling machines, etc. Send for our list.
Terms to suit.
CINCINNATI MACHINERY & SUPPLY CO.
26 West 2nd St., Cincinnati, Ohio.

FOR SALE

We offer 523, 55-ton all-steel, self-clearing DOUBLE HOPPER CARS consisting of:

160 USRA construction; built 1921-1922; with A-B brakes; 1880 cubical feet capacity.

363 built 1910-1915; with KD-1012 brakes, 1683 fect capacity.

ALL HAVE FULL "U" CAST STEEL TRUCK FRAMES.

Purchaser must buy all.

PRICE: $1700.00 each f.o.t. Pennsylvania

TERMS: Cash with purchase.

DELIVERY CAN COMMENCE IMMEDIATELY AND BE COMPLETED IN ABOUT 60 DAYS—AND VERY POSSIBLY SOONER.

Some $30,000 to $40,000 NEW REPAIR MATERIALS also available which you may wish to have inspected at the same time.

TIME and EXPEDITION ESSENTIAL and DESIRABLE.

Yours for Victory,

IRON & STEEL PRODUCTS, Inc.

37 years' experience

13412 S. Brainard Ave., Chicago, Illinois

"ANYTHING containing IRON or STEEL"

FOR SALE: At Oklahoma City, one Sectional Steel sand or rock storage bin with two dump valves, $350.00. Patridge, Cities Service Oil, Bartlesville, Okla.

FOR SALE: 27½" Ideal Rotary Table, 5 sheave 200 ton Crown Block, 4 sheave 72" traveling block, 8" Ideal enclosed rotary hook. Melton Machinery & Supply Co., Seminole, Okla.

FOR SALE: 50—5½" OD 11½V Thd, 200—7" OD 10V Thd and 25—10" 8V Thd., used CI Flat Plugs, cheap. Patridge, Cities Service Oil, Bartlesville, Okla.

DIESEL—GAS—ENGINES

Large selection — All sizes and types. Generator units, marine engines, gasoline engines, auxiliaries—boilers, steam engines, and turbo-generator sets.

Complete information on request.

A. G. SCHOONMAKER COMPANY
48 Church Street, New York, N. Y.

FOR SALE: At Oklahoma City, 50 Solid and Split Casing Spiders with Slips for 9" and 9⅝" OD Casing. Complete, $50.00 each. Patridge, Cities Service Oil Co., Bartlesville, Okla.

40,000 Ft. 2" Line Pipe, Screw & P.E. Also 3", 4", 5½", 7", etc. Large stock of fittings, valves & other used material. GILBERT PIPE & SUPPLY, Electra, Tex.

FOR SALE: Line pipe racked near Toronto, Kansas. 10 miles 2" screw, 3 miles 4" P.E., 2500' 5" P.E., 1500' 6" P.E. Phone Earl Orr, Toronto, Kansas.

FOR SALE: Star Mfg. Company, portable cooling tower, telescoping type, 7' wide, 13' long, 8' high. All steel. Melton Machinery & Supply Co., Seminole, Okla.

FOR SALE—A large stock of reconditioned valves and fittings suitable for refinery and pipe line service. Inquire. Eason Oil Company, Enid, Okla.

BARGAIN—12 KW 125-Volt G. E. Generator complete with switch board, etc. GILBERT PIPE & SUPPLY, Electra, Tex.

FOR SALE: 12 K.W. Portable Light Plant Powered by 35 H.P. International Engine. Melton Supply Co., Seminole, Okla.

FOR SALE: 30—1½ KW Steam Turbine Generators. $25.00 each. Patridge, Cities Service Oil, Bartlesville, Okla.

FOR SALE—Three 15 x 10 and one 12 x 10 Pneumatic Compressors less motors or power units. In excellent condition, suitable for low pressure service. Inquire Eason Oil Company, Enid, Oklahoma.

FOR SALE AT BARGAIN—2 complete drilling rigs, 1 Unit Rig Company U-10 with 13,000 Diesel caterpillar with 7⅛ x 12 G. D. pump; also 1 type R. Cardwell double drum draw works, 160 HP engines ready to move on job. Box 1439, Tulsa, Okla.

FOR SALE: 1—5½ Keystone Spudder with International motor, portable tool house, fifteen hundred foot ¾" wire line and complete set drilling tools.

1—Practically new 45 Star Spudder (extra good).

1—110 H.P. Twin 2 stage direct driven Miller compressor.

VEEDER SUPPLY & DEVELOPMENT CO.
Cherryvale, Kansas.

⅞" Oklahoma City used sucker rods, 50,000 feet, good condition. 50—10 and 12" x 23' Channels. 3—24" x 20' Beams and some short pieces, smaller sizes. Some reinforcing sucker rods, all at Oklahoma City. M. R. Travis, 1702 S. Boulder, Tulsa, Okla.

Steel VALVES!

Cast and Forged
Also
Cast Iron Valves
Standard and High Pressure

Every Type Used in an Oil Refinery

All Expertly Reconditioned and GUARANTEED to Perform Like New.

No Delays
Immediate Delivery
YOU SAVE 25%
Over Cost of New Valves

Brown-Strauss Corporation
1446 Guinotte . . . Kansas City, Mo.

Petroleum Section to Hold 3-Day Session at Safety Meet

The petroleum section of the National Safety Council will hold sessions extending over 3 days, from October 27 through October 29, when the council meets at Chicago late this month. B. L. Majewski, director of marketing for District 2 and vice president of Deep Rock Oil Corp., will address the luncheon meeting, while L. S. Wescoat, vice president and secretary, Pure Oil Co., will deliver a welcoming and keynote address at the beginning of the first meeting.

F. R. McLean, Socony-Vacuum Oil Co., Inc., is general chairman of the petroleum section meeting. Vice chairmen are H. T. Markee, Phillips Petroleum Co. (production); J. L. Manes, Sun Oil Co., Dallas, Tex., (pipe lines); J. Howard Myers, Atlantic Refining Co. (manufacturing), and J. J. Reilly, Tide Water Associated Oil Co. (marketing).

Shell Authorized to Pay Ventura Royalty-Oil Premium

WASHINGTON, D. C.—Shell Oil Co., Inc., has been authorized by the Office of Price Administration to pay all its lessors in the Ventura Avenue field in California the same prices for royalty crude oil it had been paying to them prior to February 2, 1942.

The action, taken in Amendment 33 to Revised Price Schedule 88 (petroleum and petroleum products), is retroactive to February 2, 1942, the day the schedule became effective.

Publicly posted prices for the field on October 1, 1941, base period under the schedule, were below the prices paid by Shell for royalty crude to its lessors in the field. Some of the lessors had written contracts for the premium prices. Under terms of the schedule these contract prices became the ceiling prices for those having contracts. But for those who had no written contracts the ceiling price became the posted price, which was lower than the prices all the lessors had formerly received.

Under the amendment all of the Shell lessors in the field are entitled to the premium prices, whether they had written contracts on October 1, 1941, or not. The Shell company agreed to absorb the difference, which amounts to an average of 3 cents a barrel.

Abercrombie Pump Co.	99
Alcorn Combustion Co.	60
Allis-Chalmers Mfg. Co.	5
Allis Co., Louis	8A-8B
American Cable Division of American Chain & Cable Co., Inc.	Inside Back Cover
American Meter Company	82-83
Badger & Sons Co., E. B.	Front Cover
Baker Oil Tools, Inc.	20
Bechtel-McCone-Parsons Corp.	57
Bethlehem Supply Company	1
Bingham Pump Co.	76-77
Briggs & Stratton Corp.	88
Brown & Brown, Inc.	103
Bruning, Charles, Co., The	82
Bucyrus-Erie	94
Cameron Iron Works, Inc.	2
Cardwell Mfg. Co., Inc.	4
Carnegie-Illinois Steel Corporation	15
Chicago Bridge & Iron Company	Inside Front Cover
Classified Advertising	110-111
Cleveland Trencher Company	74
Continental Motors Corp.	8
Cooper, Fred E.	81
Crutcher-Rolfs-Cummings	74
Curtin, W. H., Co., The	99
Dodge Manufacturing Corporation	10
Dravo Corp.	71
Dresser Mfg. Co., The	100
Dumametallic Corp.	90
Electrical Facilities, Inc.	74
Elliott Company	72
Erie Bolt & Nut Co.	54
Federal Electric Co., Inc.	95
Foxboro Mfg. Co., The	12-13
General American Transportation Corporation—Terminal Division	55
General Paint Corporation	80
Graver Tank & Mfg. Co., Inc.	68
Gray Processes Corporation, The	6
Hanlon-Waters, Inc.	71
Hill, Hubbell & Co.	80
Hughes Tool Co.	Back Cover
Jeffrey Mfg. Co.	103
Jensen Brothers Manufacturing Co.	93
Justrite Manufacturing Co.	101
Kellogg, M. W., Company, The	50
Kennedy Valve Mfg. Co., The	87
Keuffel & Esser Co.	58
Le Roi Company	84
Lincoln Electric Company, The	37
Lucey Export Corporation	59
Ludlow Valve Mfg. Co., The	58
Lufkin Rule Co.	98
Lunkenheimer Co., The	18
McCord Radiator & Mfg. Co.	98
McCullough Tool Co.	96
MacClatchie Manufacturing Co.	102
Macwhyte Co.	3
Marsh, James P., Corp.	92
Martin-Decker Corp.	102
Midwest Piping & Supply Company, Inc., The	11
Mission Mfg. Co., The	47
National Bank of Tulsa	78
National Supply Co., The	52-53
Oil Well Supply Co.	85
Patterson-Ballagh Corporation	99
Penn Electric Switch Co.	83
Pierce Governor Co.	86
Price, H. C., Co.	75
Rector Well Equipment Co., Inc.	103
Reed Roller Bit Company	73
Reilly Tar & Chemical Corp.	75
Republic Steel Corporation	16
Ryerson & Sons, Joseph T.	58
Saybolt, E. W., Co.	75
Spang, Chalfant, Inc.	7
Spang & Company	101
Spicer Mfg. Co.	66
Texaco Development Corporation	14
Tretolite Company	89
Tube-Turns, Inc.	33
Twin Disc Clutch Co.	17
Universal Oil Products Co.	35
Vinson Supply Co.	42
Vogt, Henry, Machine Co.	9
Wiley & Sons, Inc., John	93
Wilson Manufacturing Co., Inc.	40
Zink, John, Co.	91

ADVERTISERS IN THIS ISSUE

Journalisms:

IT'S now Ensign Robert Ingram. Bob's application was accepted by the Navy earlier in the month and last week he reported

ENSIGN ROBERT INGRAM

for training at University of Arizona. He expects to be in active service with the Navy before the end of the year. He came to the Journal in November 1939, the son of Tolbert R. Ingram, a Journal veteran who for many years has been in charge of the Denver office. His experience had embraced oil-field work as a roughneck in Wyoming and Montana, and some years' editorial training with the Denver Post. While in Tulsa, he reported fields, and wrote feature articles. Following a couple of years in the Tulsa office, he was transferred to the Fort Worth office, taking over the direction of duties there. Bob is a graduate of University of Washington.

PRESENT restrictions on the use of materials and equipment being what they are, one of the best methods open for increasing the production of oil is the cleaning out of wells. In the Pennsylvania Grade district the small increase in daily output often determines whether the lease shows a profit under the present fixed market price.

One of the basic facts of petroleum production is that it costs almost as much to operate a well producing a small amount of oil as one producing a large amount. Consequently, even a small increase in a well's output is an important economic factor.

An excellent analysis of the situation and a discussion of the more prevalent methods being used to put wells in the Venango district of Pennsylvania on a paying basis will be presented in The Oil and Gas Journal Engineering and Operating Section in the near future. Authors of the piece are well known in the oil industry, particularly in the Pennsylvania Grade area. They are Parke A. Dickey, Pennsylvania Topographic and Geologic Survey, and R. B. Bossler, Brundred Oil Corp.

CALENDAR

October

PETROLEUM ACCOUNTANTS SOCIETY OF OKLAHOMA, Hotel Mayo, Tulsa, October 22.

SOCIETY OF AUTOMOTIVE ENGINEERS, Mid-west Fuels and Lubricants regional meeting, Tulsa, October 22-23.

NATIONAL LUBRICATING GREASE INSTITUTE, tenth annual meeting, New Orleans, La., October 25-29.

NATIONAL ASSOCIATION OF CREDIT MEN, Petroleum Division, St. Louis, Mo., October 26-28.

NATIONAL SAFETY CONGRESS AND EXPOSITION, thirty-first annual meeting, Sherman Hotel-Palmer House, Chicago, Ill., October 27-29.

AMERICAN INSTITUTE OF MINING AND METALLURGICAL ENGINEERS, Mid-Continent section, Mayo Hotel, Tulsa, October 26.

AMERICAN INSTITUTE OF MINING AND METALLURGICAL ENGINEERS, Petroleum Division, Austin, Tex., October 29-31.

WESTERN PETROLEUM REFINERS ASSOCIATION, technical meeting, Shreveport, La., October 30.

November

CALIFORNIA NATURAL GASOLINE ASSOCIATION, Los Angeles, Calif., November 6.

PETROLEUM ELECTRIC POWER ASSOCIATION, business session of member-company executives and election of officers, Baker Hotel, Dallas Tex., November 12.

AMERICAN PETROLEUM INSTITUTE, twenty-third annual meeting, Palmer House, Chicago, Ill., November 9-13.

AMERICAN INSTITUTE OF CHEMICAL ENGINEERS, thirty-fifth annual meeting, Netherlands Plaza Hotel, Cincinnati, Ohio, November 16-18.

AMERICAN ASSOCIATION OF OILFIELD DRILLING CONTRACTORS, second annual meeting, Mayo Hotel, Tulsa, November 19-20.

AMERICAN CHEMICAL SOCIETY, national chemical exposition and national industrial chemical conference, Sherman Hotel, Chicago, Ill., November 24-29.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, annual meeting, New York, November 30-December 4.

December

NEW MEXICO OIL AND GAS ASSOCIATION, annual meeting, Artesia Hotel, Artesia, N. M., December 2.

PETROLEUM ACCOUNTANTS SOCIETY OF OKLAHOMA, Hotel Mayo, Tulsa, December 17.